(1)

Access DB# 260549

EIC 1700
SEARCH REQUEST

Today's Date 5-14-08

Name Sin J. Lee	Priority App. Filing Date P/2. see B.6.
AU/Org. 1795 Examiner # 76060	Case/App. # 10/527,068
Bld.&Rm.# 9C15 (Rem) Phone 2-1333	**Format for Search Results** EMAIL ___ PAPER ✓

If this is a Board of Appeals case, check here ☐

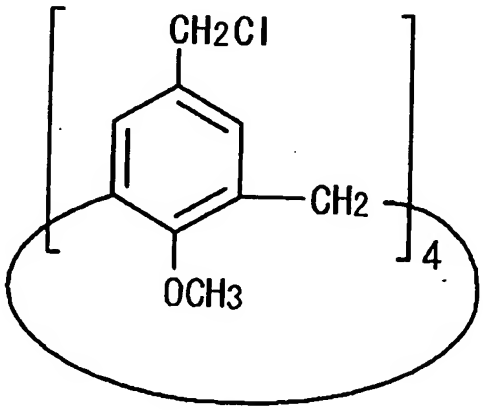
Synonyms

Describe this invention in your own words.

Terms to avoid

Additional Comments

P/2. search for a resist composition containing the following compound



(I)

Please submit completed form to your EIC. SPE Signature here indicates Rush

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STAFF USE ONLY Type of Search Vendors and cost where applicable

Abstract

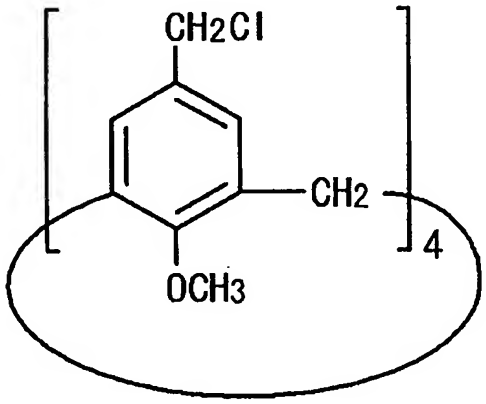
The resist according to the present invention includes any one of tetrachloromethyl tetramethoxycalix [4] arene and trichloromethyl tetramethoxycalix [4] arene. The resist including such kind of components is soluble in the solvent having less effect to worsen a working environment, namely, ethyl lactate (EL), propylene glycol monomethyl ether (PGME), propylene glycol monomethyl ether acetate (PGMEA), ethyl propionate, n-butyl acetate and 2-heptanone. It can be developed by tetra-methyl ammonium hydroxide in addition to the above mentioned solvent. By exposing this resist by electronic ray, high resolution of 8 nm is attained, and by using this resist as a mask, various materials can be formed into a hyperfine shape. According to such kind of resist, a photosensitive resist material which has high resolution and solvable to solvents having less effect to worsen the working environment and can be developed by the solvents, a exposure method using it, and a hyperfine processing method using it are provided.

AMENDMENTS TO THE CLAIMS

1. (Canceled)

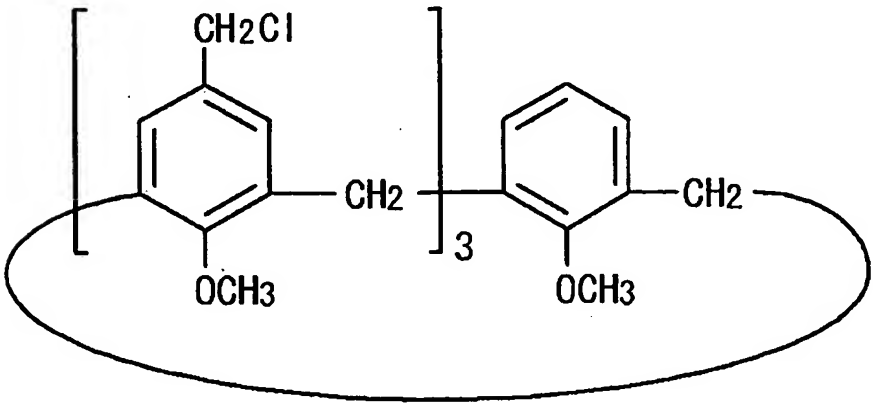
2. (Original) A resist comprising at least one of 5,11,17,23 - tetrachloromethyl – 25,26,27,28 – tetramethoxycalix [4] arene (CMC4AOMe) represented by the structural formula (I) of the following chemical formula 3 and 5,11,17 – trichloromethyl – 25,26,27,28 – tetramethoxycalix [4] arene (CMC3AOMe) represented by the structural formula (II) of the following chemical formula 4.

[Chemical Formula 3]



(I)

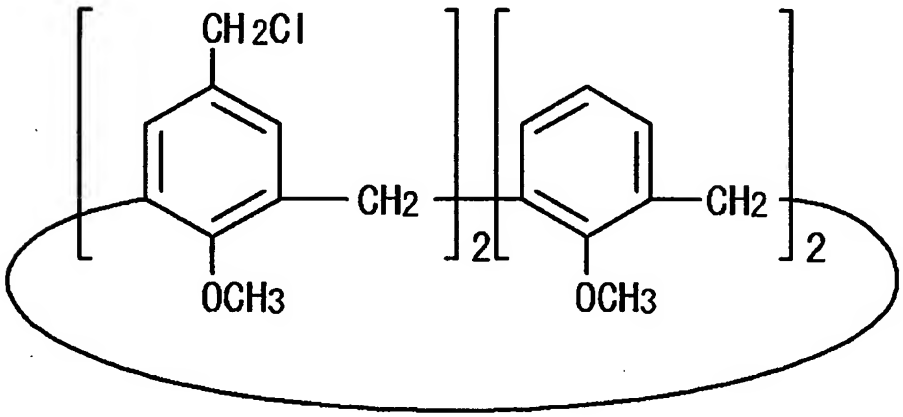
[Chemical Formula 4]



(II)

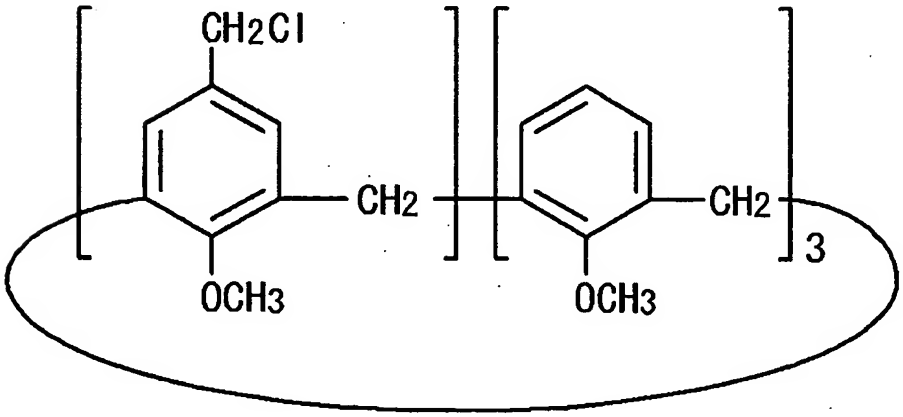
3. (Original) The resist according to claim 2, further comprising at least one of 5,11 – dichloromethyl – 25,26,27,28 – tetramethoxycalix [4] arene (CMC2AOMe) represented by the structural formula (III) of the following chemical formula 5 and 5 – monochloromethyl – 25,26,27,28 – tetramethoxycalix [4] arene (CMC1AOMe) represented by the structural formula (IV) of the following chemical formula 6 is provided.

[Chemical Formula 5]



(III)

[Chemical Formula 6]



(IV)

4. (Previously Presented) The resist according to claim 2, further comprising at least one of oligomer and organic polymer compound.

5. (Previously Presented) The resist according to claim 2, which is exposed by the irradiation of at least one of electronic beam, X-ray, ion beam and atomic beam.

6. (Previously Presented) The resist according to claim 2, further comprising, at least one solvent selected from the group consisting of ethyl lactate (EL), propylene glycol monomethyl ether (PGME), propylene glycol monomethyl ether acetate (PGMEA), ethyl propionate, n-butyl acetate and 2-heptanone.

7. (Original) A method for forming a resist pattern comprising the following steps of coating the resist according to claim 6 on a substrate, exposing said resist to a radioactive ray; and a step developing said resist.

8. (Original) The method according to claim 7,

Wherein said radioactive ray is any of electronic beam, X-ray, ion beam and atomic beam.

9. (Previously Presented) The method according to claim 7,

wherein said developing step is carried out by using a developer comprising at least one selected from the group consisting of ethyl lactate (EL), propylene glycol monomethyl ether

(PGME), propylene glycol monomethyl ether acetate (PGMEA), ethyl propionate, n-butyl acetate, 2-heptanone and tetramethyl ammonium hydroxide.

10. (Previously Presented) A method for hyperfine processing comprising the steps of forming a resist pattern using the resist pattern forming method according to claim 7; and performing a processing on said substrate with said resist pattern as a mask.

11. (Previously Presented) The resist according to claim 3, further comprising at least one of oligomer and organic polymer compound.

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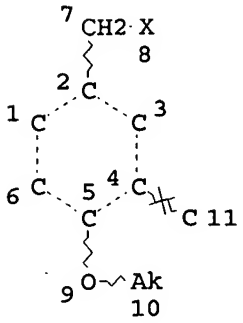
L12 STR



NODE ATTRIBUTES:
NSPEC IS RC AT 11
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 11

STEREO ATTRIBUTES: NONE
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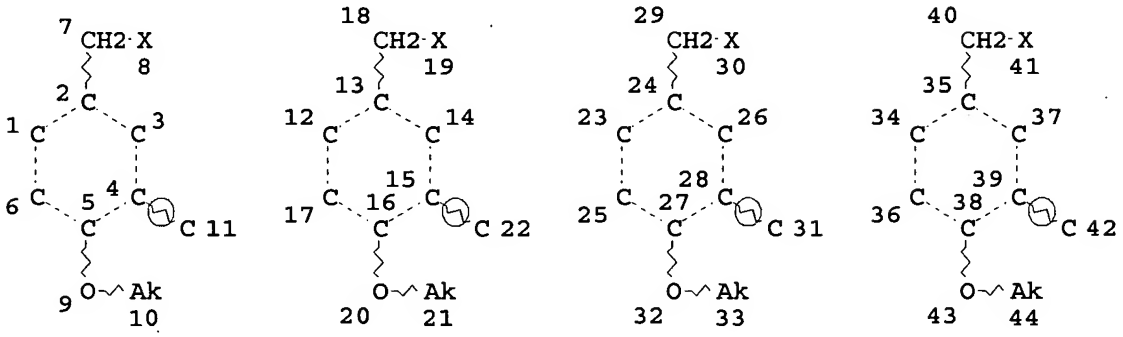
L16 STR



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NSPEC IS R AT 31
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DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

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NUMBER OF NODES IS 44

STEREO ATTRIBUTES: NONE
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L24 64 SEA FILE=HCAPLUS ABB=ON PLU=ON L18

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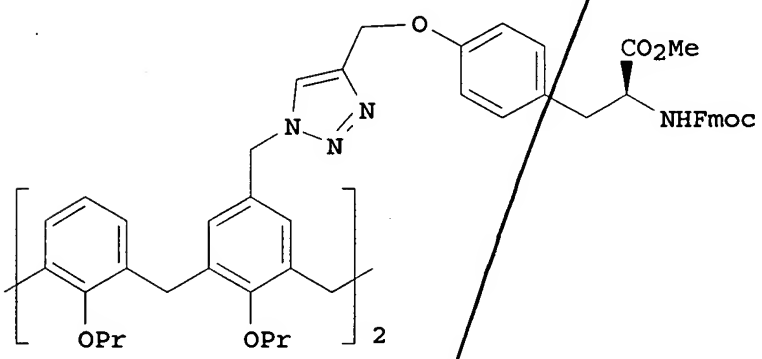
L24 ANSWER 1 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2007:899556 HCAPLUS
DOCUMENT NUMBER: 147:385707
TITLE: Upper Rim Appended Hybrid Calixarenes via Click Chemistry
AUTHOR(S): Bew, Sean P.; Brimage, Rebecca A.; L'Hermite, Nathalie; Sharma, Sunil V.
CORPORATE SOURCE: School of Chemical Sciences Pharmacy, University of East Anglia, Norwich, NR4 7TJ, UK
SOURCE: Organic Letters (2007), 9(19), 3713-3716
CODEN: ORLEF7; ISSN: 1523-7060
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 147:385707
ED Entered STN: 15 Aug 2007
GI

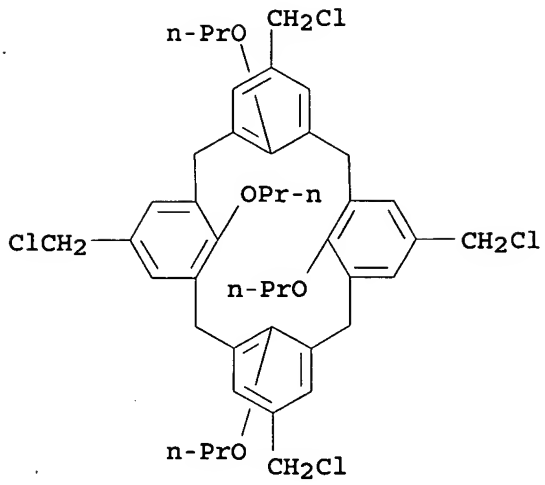


I

AB We report the application of "click" chemical for the synthesis of hybrid calixarenes appended on the upper rim with carbohydrate and N,C-protected α-amino acids, e.g., I. The chemoselective N- or C-deprotection of the α-amino acids and their subsequent transformation into dipeptides is described. The first example of a chemo-enzymic synthesis on upper rim derived calix[4]arenes using trans-sialidase affords sialylated lactose calix[4]arenes. Our innovative chemo-enzymic process paves the way for further applications.

IT **325814-49-1**
(preparation of hybrid calixarenes appended on the upper rim with carbohydrate or protected α-amino acids via copper catalyzed microwave assisted Click chemical)

RN 325814-49-1 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy- (CA INDEX NAME)



CC 25-29 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
Section cross-reference(s): 28, 33, 34
IT 10065-72-2, L-Alanine methyl ester 13139-15-6 34272-02-1
125376-33-2 176098-86-5 **325814-49-1** 910479-36-6
949894-57-9 949894-83-1 949894-88-6 949894-90-0 949894-92-2
949894-99-9
(preparation of hybrid calixarenes appended on the upper rim with carbohydrate or protected α-amino acids via copper catalyzed microwave assisted Click chemical)
REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

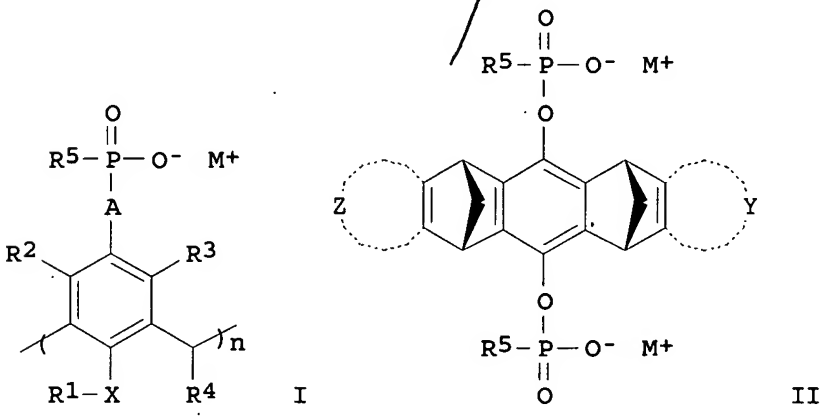
L24 ANSWER 2 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2006:510567 HCAPLUS
DOCUMENT NUMBER: 145:28124
TITLE: Preparation of novel calixarene- and polycyclic aromatic phosphonates and phosphates for treatment, diagnostic and prevention of dry age-related retinal macular degeneration
INVENTOR(S): Schrader, Thomas; Klaerner, Frank-Gerrit; Fokkens, Michael; Zadmard, Reza; Polkowska, Jolanta; Bastkowski, Frank; Jasper, Christian
PATENT ASSIGNEE(S): Philipps-Universitaet Marburg, Germany; Universitaet Duisburg-Essen
SOURCE: PCT Int. Appl., 58 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006056182	A1	20060601	WO 2005-DE2106	20051123

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO,

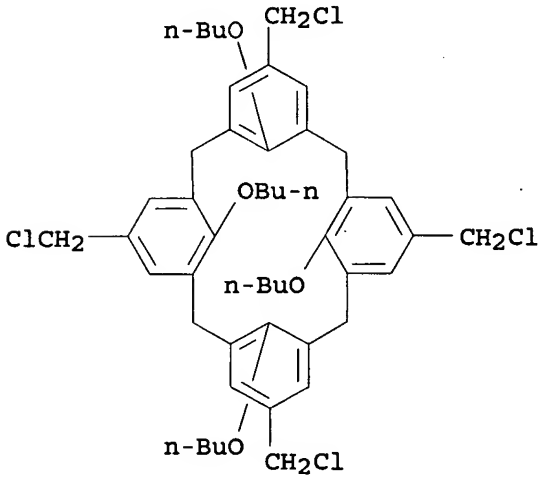
RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ,
UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU,
IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR,
BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD,
TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
DE 102004056822 A1 20060608 DE 2004-102004056822 20041124
PRIORITY APPLN. INFO.: DE 2004-102004056822A 20041124

OTHER SOURCE(S): CASREACT 145:28124; MARPAT 145:28124
ED Entered STN: 01 Jun 2006
GI



AB Novel diphosphonates and diphosphates with calixarene or dimethano-acene backbones (I, II, resp.; A = bond, CH2, X = O,S; n = 4-8; R1 = H, C4-20 alkyl, N-, O-, S-, P-heteroalkyl, hydroxyoligoalkoxyalkoxy, alkylcarboxy, isoprenyl, terpenyl, sesquiterpenyl, diterpenyl; R2, R3 = H, OH; R4 = H, linear C1-20 alkyl, preferably R4 = C1-8 linear alkyl; R5 = O-, alkyl, aryl, alkoxy aryloxy, cycloalkoxy, heteroalkoxy; Z, Y = benzo-, 2,3-naphtho-, 2,3-anthraceno-), useful as specific complexants for lipophilic pyridinium bis-retinoid cation (A 2E) in treatment, diagnostic and prevention of eye dry age-related macular degeneration, were prepared by nickel-catalyzed phosphonylation of tetrabromo-calixarene ethers and esterification of dimethanoacene diols by phosphonic dichloridites with subsequent hydrolysis; the prepared diphosphonates and diphosphates were assayed in complexation with A 2E. Clips II feature a fused-ring systems in which aromatic ring systems are bonded to one another via bicyclo[2.2.1]hept-2-ene groups in such a manner that the entire mol. describes a U and forms a cavity. In an example, reaction of 0.83 mmol of tri-Et phosphite in 2 mL of benzonitrile with 0.5 mmol of 5,11,17,23-tetrabromo-25,26,27,28-tetrabutoxycalix[4]arene in the presence of 0.25 mmol of NiCl2 at 180° for 1 h gave 0.32 mmol (62%) of diethoxyphosphinyl derivative of the calix[4]arene which was converted to I (n = 4; XR1 = OBu, R2 = R3 = H; A = bond, R5 = OEt, M = Li) by heating with 4 mol equiv of LiBr in 2-hexanol at 130° for 1.5 h. In another example, complexation of A 2E with compound II (R5 = Me, Z = Y = 2,3-naphtho) was studied by NMR titration; a value of binding constant K was found to be 2125 M-1.

IT **435332-10-8**
(process for preparation of calixarene and polycyclic aromatic phosphonates as complexants for pyridinium lipophilic retinoid in treatment of eye age-related macular degeneration)
RN 435332-10-8 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 25,26,27,28-tetrabutoxy-5,11,17,23-tetrakis(chloromethyl)- (CA INDEX NAME)



CC 29-7 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 1, 13, 22
IT 676-97-1 288625-14-9 **435332-10-8** 464172-15-4
(process for preparation of calixarene and polycyclic aromatic phosphonates as complexants for pyridinium lipophilic retinoid in treatment of eye age-related macular degeneration)
REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

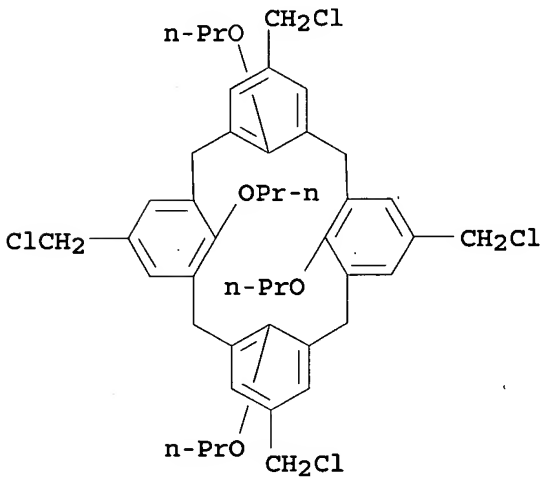
L24 ANSWER 3 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2006:384572 HCAPLUS
DOCUMENT NUMBER: 145:83266
TITLE: Influence of the number and geometry of binding sites on host-guest affinity: imidazolium-substituted receptor molecules for small inorganic anions
AUTHOR(S): Fahlbusch, Tilmann; Frank, Markus; Schatz, Juergen; Schmaderer, Harald
CORPORATE SOURCE: Division of Organic Chemistry I, University of Ulm, Ulm, 89081, Germany
SOURCE: European Journal of Organic Chemistry (2006), (8), 1899-1903
CODEN: EJOCFK; ISSN: 1434-193X
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 145:83266
ED Entered STN: 27 Apr 2006
AB The influence of the number and relative geometry of the binding sites on

the binding of spherical and tetragonal inorg. anions (Cl-, Br-, H2PO4-, and HSO4-) has been studied by using imidazolium salts based on benzene and calix[4]arenes. Binding consts. in DMSO were in the range of 200-2000 L mol-1. Three or four binding sites lead to the nonselective binding of all anions indicating the decisive influence of the number of possible binding positions; binding consts. of .apprx. 2000 for H2PO4-, 1000 for HSO4-, 900 for Cl-, and 800 L mol-1 for Br- were obtained. Benzene and calixarene-based (5b) bis(imidazolium) salts exhibited a high selectivity towards H2PO4-/HSO4- and Cl-/Br- indicating that for the complexation of H2PO4- and Cl- two binding sites are necessary, and for Br- and HSO4- at least three. In this case, selectivity could be obtained by simple variation of the number of identical binding positions.

IT **325814-49-1**
(preparation and influence of the number and geometry of binding sites on host-guest affinity in imidazolium-substituted receptor mols. for small inorg. anions)

RN 325814-49-1 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy- (CA INDEX NAME)



CC 28-9 (Heterocyclic Compounds (More Than One Hetero Atom))

IT 616-47-7, 1-Methylimidazole 18226-42-1, 1,3,5-Tris(bromomethyl)benzene 21988-87-4, 1,3,5-Tris(bromomethyl)-2,4,6-trimethylbenzene 176098-86-5 190779-61-4 **325814-49-1**
(preparation and influence of the number and geometry of binding sites on host-guest affinity in imidazolium-substituted receptor mols. for small inorg. anions)

REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 4 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

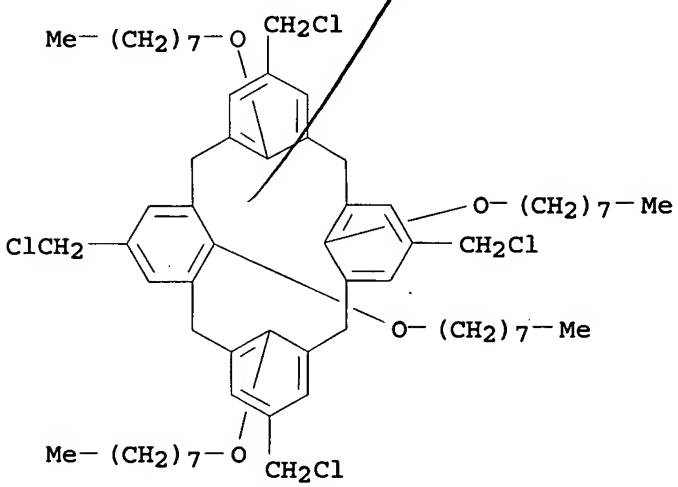
ACCESSION NUMBER: 2006:104308 HCAPLUS

DOCUMENT NUMBER: 145:292510

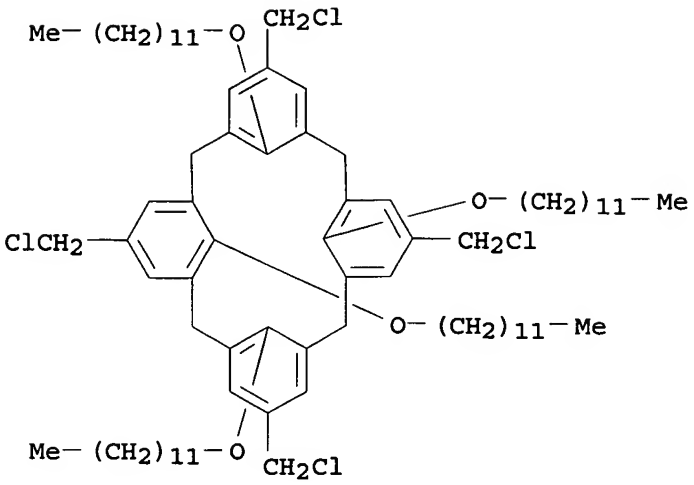
TITLE: Self-assembly of amphiphilic calix[4]arenes in aqueous solution

AUTHOR(S): Strobel, Michael; Kita-Tokarczyk, Katarzyna;

Taubert, Andreas; Vebert, Corinne; Heiney, Paul A.; Chami, Mohamed; Meier, Wolfgang
CORPORATE SOURCE: Department of Chemistry, Biozentrum, University of Basel, Basel, CH-4056, Switz.
SOURCE: Advanced Functional Materials (2006), 16(2), 252-259
CODEN: AFMDC6; ISSN: 1616-301X
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 145:292510
ED Entered STN: 03 Feb 2006
AB The self-assembly of amphiphilic calix[4]arenes with either a carboxylic acid or a tri-Me ammonium head group and different alkyl chains in aqueous solution was investigated. The carboxylated calixarene forms vesicles in dilute solution and stable monolayers on water. In contrast, the ammonium head group provides high water solubility with no observed aggregation. At high concns., all calixarene amphiphiles form lyotropic liquid crystals.
IT **908010-96-8P 908010-97-9P**
(intermediate; self-assembly of amphiphilic calix[4]arenes in aqueous solution)
RN 908010-96-8 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrakis(octyloxy)- (CA INDEX NAME)



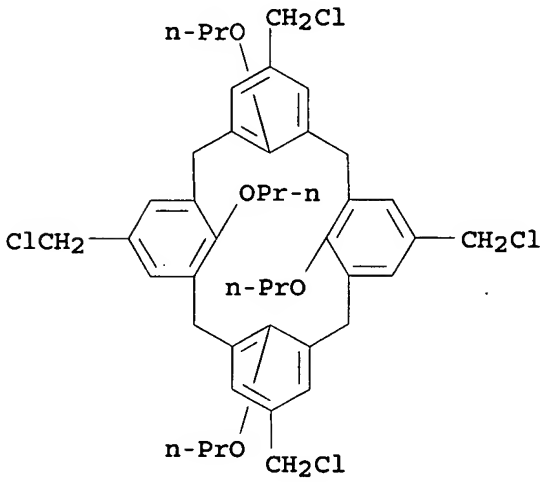
RN 908010-97-9 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrakis(dodecyloxy)- (CA INDEX NAME)



CC 22-13 (Physical Organic Chemistry)
Section cross-reference(s): 66, 68, 75
IT 74568-07-3P 141344-73-2P 149484-39-9P 402870-55-7P
908010-96-8P 908010-97-9P
(intermediate; self-assembly of amphiphilic calix[4]arenes in aqueous solution)
REFERENCE COUNT: 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 5 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2006:44975 HCAPLUS
DOCUMENT NUMBER: 144:292271
TITLE: Kinetic Acidity of Supramolecular Imidazolium Salts-Effects of Substituent, Preorientation, and Counterions on H/D Exchange Rates
AUTHOR(S): Fahlbusch, Tilmann; Frank, Markus; Schatz, Juergen; Schuehle, Daniel T.
CORPORATE SOURCE: Division of Organic Chemistry I, University of Ulm, Ulm, D-89069, Germany
SOURCE: Journal of Organic Chemistry (2006), 71(4), 1688-1691
CODEN: JOCEAH; ISSN: 0022-3263
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 144:292271
ED Entered STN: 18 Jan 2006
AB The deprotonation of imidazolium salts to N-heterocyclic carbenes is often a decisive step in modern catalytic reactions. Therefore, we studied the H/D exchange of the C2 H of 15 imidazolium-substituted calix[4]arenes and 11 nonmacrocyclic model compds. in methanol/water (97:3). The influence of the counterion, substitution directly on the imidazolium unit or on the preorienting calixarene backbone could be studied. The observed exchange rates might give a rational for the suitability of the imidazolium salts as precursors in the Suzuki coupling.
IT **325814-49-1**
(quaternization reaction; substituent, preorientation, and counterions effects on H/D exchange rates and kinetic acidity of

supramol. imidazolium salts)
RN 325814-49-1 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy- (CA INDEX NAME)



CC 22-12 (Physical Organic Chemistry)
IT 616-47-7, 1-Methylimidazole 25364-44-7, 1-Mesitylimidazole 45676-04-8, 1-tert-Butylimidazole 176098-86-5 **325814-49-1** 878482-79-2
(quaternization reaction; substituent, preorientation, and counterions effects on H/D exchange rates and kinetic acidity of supramol. imidazolium salts)
REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

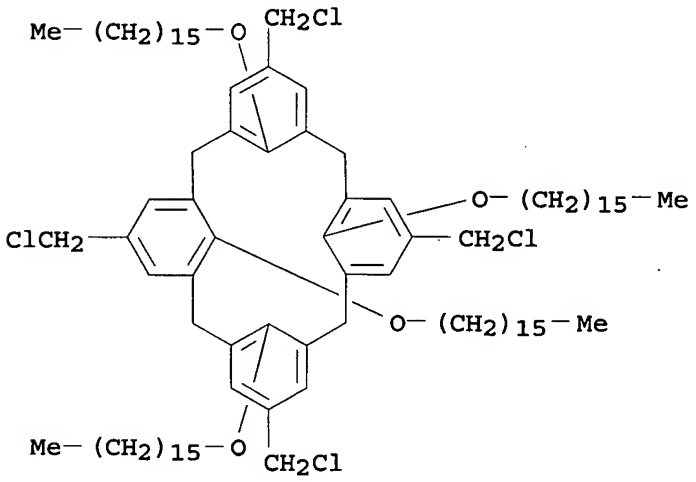
L24 ANSWER 6 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2005:1350225 HCAPLUS
DOCUMENT NUMBER: 144:261552
TITLE: Gluing Langmuir-Blodgett Monolayers onto Hydrocarbon Surfaces
AUTHOR(S): Li, Junwei; Janout, Vaclav; Regen, Steven L.
CORPORATE SOURCE: Department of Chemistry, Lehigh University, Bethlehem, PA, 18015, USA
SOURCE: Journal of the American Chemical Society (2006), 128(3), 682-683
CODEN: JACSAT; ISSN: 0002-7863
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 144:261552
ED Entered STN: 30 Dec 2005
AB This paper describes a new approach for modifying hydrophobic surfaces that is based on the use of ionically cross-linked (i.e., glued) Langmuir-Blodgett monolayers. Specifically, this work shows how monolayers of 5,11,17,23,29,35-hexa(trimethylammonium Me)-37,38,39,40,41,42-hexakis-n-hexadecyloxy-calix[6]arene , which were ionically cross-linked with poly(4-styrene-sulfonate) (PSS, MW

30,000-50,000), can be deposited onto silylated silicon wafers with their polar headgroups extending outward into air. This work also demonstrates the feasibility of using glued monolayers of 1a as anchors for attaching alternating layers of poly(diallyldimethylammonium) [PDADMA] and PSS ions onto these same hydrocarbon surfaces.

IT **877063-17-7**
(cone conformer; gluing Langmuir-Blodgett monolayers onto hydrocarbon hydrophobic surfaces)

RN 877063-17-7 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrakis(hexadecyloxy)- (CA INDEX NAME)



CC 66-5 (Surface Chemistry and Colloids)
Section cross-reference(s): 22

IT 877063-16-6 **877063-17-7**
(cone conformer; gluing Langmuir-Blodgett monolayers onto hydrocarbon hydrophobic surfaces)

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 7 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:31712 HCAPLUS

DOCUMENT NUMBER: 142:279714

TITLE: Multiple ionic interactions for noncovalent synthesis of molecular capsules in polar solvents

AUTHOR(S): Corbellini, Francesca; van Leeuwen, Fijs W. B.; Beijleveld, Hans; Kooijman, Huub; Spek, Anthony L.; Verboom, Willem; Crego-Calama, Mercedes; Reinhoudt, David N.

CORPORATE SOURCE: Laboratory of Supramolecular Chemistry and Technology, MESA+ Institute for Nanotechnology, University of Twente, Enschede, 7500 AE, Neth.

SOURCE: New Journal of Chemistry (2005), 29(1), 243-248
CODEN: NJCHE5; ISSN: 1144-0546

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English
OTHER SOURCE(S): CASREACT 142:279714
ED Entered STN: 14 Jan 2005
GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

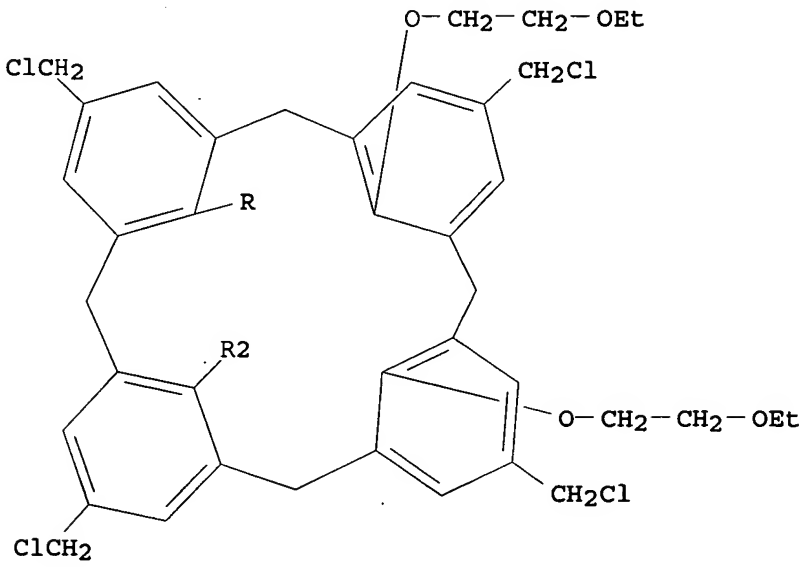
AB The formation and characterization of mol. capsules resulting from the self-assembly between oppositely charged (thia)calix[4]arenes in polar solvents like MeOH and MeOH-H2O are reported. The multiple ionic interactions allow the self-assembly of the complementary (thia)calix[4]arenes I and II,III,IV, and V into 1:1 complexes as revealed by 1H NMR and mass spectrometry (ESI-MS). Isothermal titration calorimetry (ITC) was used to determine the association consts., which, depending on the ionic groups involved in the complexes, vary between 103 and 106 M-1. An X-ray structure of the assembly I•V was also obtained. Unlike in solution, in the solid state I•V forms a 1:1 three-dimensional network in which V adopts a 1,2-alternate conformation.

IT **155057-44-6P**
(intermediate; multiple ionic interactions for noncovalent synthesis of mol. capsules in polar solvents)

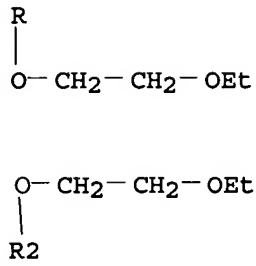
RN 155057-44-6 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrakis(2-ethoxyethoxy)- (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



CC 22-3 (Physical Organic Chemistry)
Section cross-reference(s): 75
IT **155057-44-6P**
(intermediate; multiple ionic interactions for noncovalent synthesis of mol. capsules in polar solvents)
REFERENCE COUNT: 55 THERE ARE 55 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

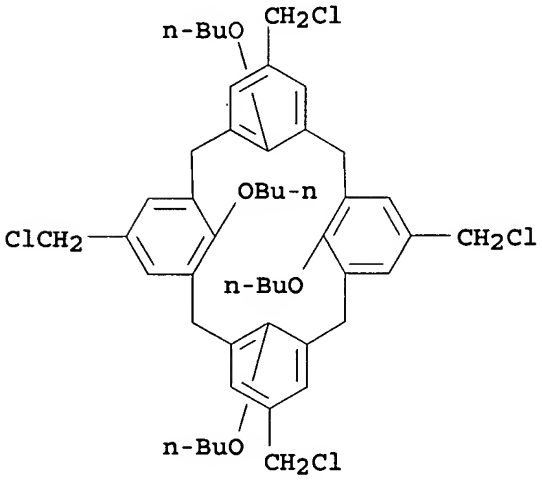
L24 ANSWER 8 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2005:2460 HCAPLUS
DOCUMENT NUMBER: 142:235958
TITLE: Nanomolar protein sensing with embedded receptor molecules
AUTHOR(S): Zadmard, Reza; Schrader, Thomas
CORPORATE SOURCE: Fachbereich Chemie, Philipps-Universitaet Marburg, Marburg, 35032, Germany
SOURCE: Journal of the American Chemical Society (2005), 127(3), 904-915
CODEN: JACSAT; ISSN: 0002-7863
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 142:235958
ED Entered STN: 03 Jan 2005
AB A new concept of protein sensing at the air-water interface is introduced, based on amphiphilic receptor mols. embedded in a lipid monolayer. The process begins with incorporation of a small amount (0.13 equiv) of one or two different calix[4]arenes, adorned with charged functional groups at their upper rims, into a stearic acid monolayer. These doped monolayers are subsequently shown to attract peptides and proteins from the aqueous subphase. Depending on the host structure, the monolayers can be made selective for basic or acidic proteins. A working model is proposed, which explains the large observed p/A shifts with reincorporation of excess receptor mols. into the lipid monolayer after complex formation with the oppositely charged protein. This requires a self-assembly of multiple calixarene units over the protein surface, which bind the protein in a cooperative fashion. Oppositely charged calixarene derivs. do not form mol. capsules inside the monolayer, but rather remain sep. inside the lipid layer, adopting a perpendicular orientation. They combine their hydrogen bond donor and acceptor capacities, and thus markedly enhance the sensitivity of the sensor system toward proteins, pushing the detection limits to 10 pM concns. The response pattern obtained from various receptor units inside the monolayer toward the same protein creates a fingerprint for this protein, which can hence be selectively

detected at nanomolar concns. (pattern recognition).

IT **435332-10-8P**
(nanomolar protein sensing with embedded receptor mols.)

RN 435332-10-8 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 25,26,27,28-tetrabutoxy-5,11,17,23-tetrakis(chloromethyl)- (CA INDEX NAME)



CC 9-16 (Biochemical Methods)

IT **435332-10-8P** 435332-19-7P 435332-25-5P 436148-33-3P 436148-35-5P 464172-15-4P 794451-70-0P
(nanomolar protein sensing with embedded receptor mols.)

REFERENCE COUNT: 69 THERE ARE 69 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 9 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2004:769864 HCAPLUS

DOCUMENT NUMBER: 141:395148

TITLE: Stimuli-Responsive Supramolecular Nanocapsules from Amphiphilic Calixarene Assembly

AUTHOR(S): Lee, Myongsoo; Lee, Sun-Ja; Jiang, Li-Hong

CORPORATE SOURCE: Center for Supramolecular Nano-Assembly and Department of Chemistry, Yonsei University, Seoul, 120-749, S. Korea

SOURCE: Journal of the American Chemical Society (2004), 126(40), 12724-12725
CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 141:395148

ED Entered STN: 22 Sep 2004

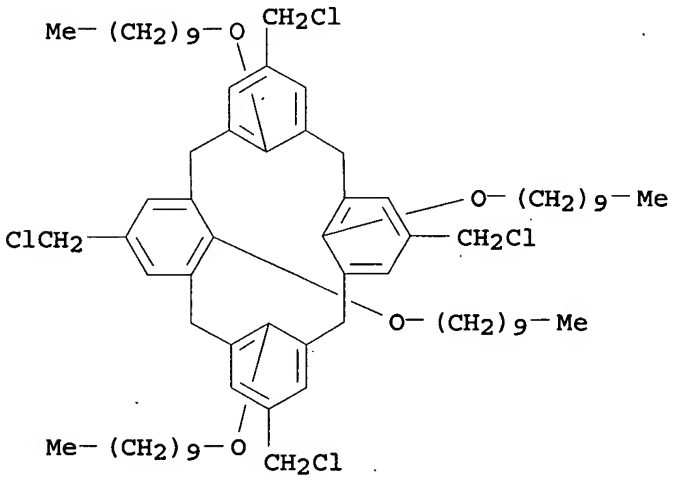
AB We synthesized tetrameric amphiphilic mols. based on a calixarene building block that self-assembles into a tunable and stable aggregation structure in aqueous solution The amphiphilic calixarene mols. with a small hydrophilic part were observed to assemble into a vesicular structure that decreases significantly in diameter with only small increases in the hydrophilic chain length. Further increasing the

chain length induced the collapse of the vesicles into spherical micelles. Remarkably, the vesicles were also observed to transform into small globular micelles at lower pH, which can be used to trigger the release of the encapsulated hydrophilic guest mols.

IT **790300-14-0P**
(stimuli-responsive supramol. nanocapsules from amphiphilic calixarene assembly)

RN 790300-14-0 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrakis(decyloxy)- (CA INDEX NAME)



CC 22-13 (Physical Organic Chemistry)
Section cross-reference(s): 73

IT 561029-60-5P **790300-14-0P**
(stimuli-responsive supramol. nanocapsules from amphiphilic calixarene assembly)

REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 10 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2004:466478 HCAPLUS

DOCUMENT NUMBER: 142:121212

TITLE: New Wide Rim Phosphomethylated Calix[4]arenes in Extraction of Americium and Europium

AUTHOR(S): Klimchuk, O.; Atamas, L.; Miroshnichenko, S.; Kalchenko, V.; Smirnov, I.; Babain, V.; Varnek, A.; Wipff, G.

CORPORATE SOURCE: Institute of Organic Chemistry, National Academy of Sciences of Ukraine, Kiev 94, 02094, Ukraine

SOURCE: Journal of Inclusion Phenomena and Macrocyclic Chemistry (2004), 49(1-2), 47-56
CODEN: JIPCF5; ISSN: 1388-3127

PUBLISHER: Kluwer Academic Publishers

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 10 Jun 2004

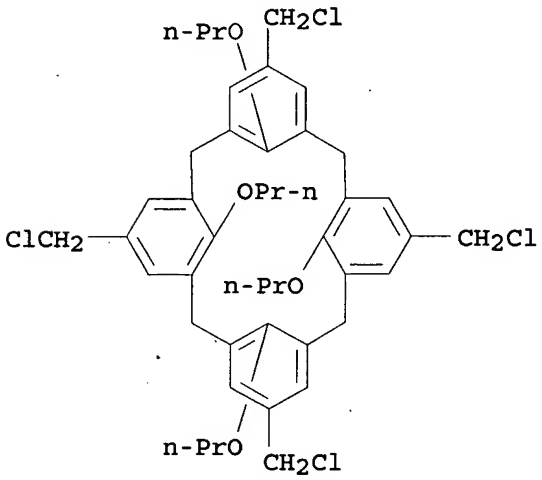
AB A new series of the cone-shaped tetraalkoxycalix[4]arenes substituted

at the wide rim with four phosphomethyl groups have been synthesized by the Arbuzov, Michaelis-Becker and Aterthon-Todd reactions of the chloromethyl or phenylhydrophosphinylmethylcalix[4]arenes. Their binding properties towards Eu3+ and Am3+ cations were investigated by the liquid-liquid extraction method. Due to the 'calixarene effect' the tetraphosphorylated calixarenes are more effective extractants for the metal cations than their acyclic analogs or some industrial extractants such as, taken for comparison, trialkylphosphinoxides, carbamoylphosphinoxide, bis-2-diethylhexyl phosphoric acid.

IT **325814-49-1 823219-78-9**
(starting materials in synthesis of phosphomethylated calixarenes)

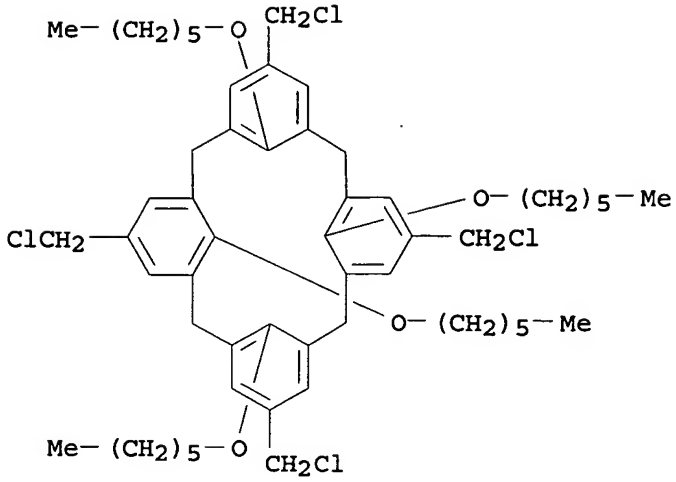
RN 325814-49-1 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy- (CA INDEX NAME)



RN 823219-78-9 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrakis(hexyloxy)- (CA INDEX NAME)



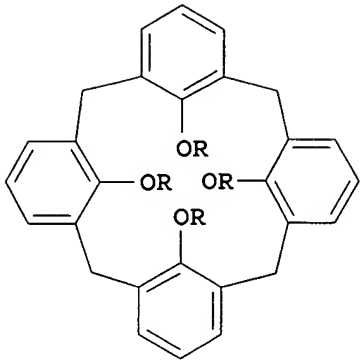
CC 68-2 (Phase Equilibriums, Chemical Equilibriums, and Solutions)
Section cross-reference(s): 25, 71
IT **325814-49-1** 476687-10-2 **823219-78-9**
(starting materials in synthesis of phosphomethylated calixarenes)
REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 11 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2004:326420 HCAPLUS
DOCUMENT NUMBER: 140:339079
TITLE: Preparation of chloromethylated calix[4]arene mixtures for negative electron beam resists
INVENTOR(S): Momota, Junji; Oshima, Eiji
PATENT ASSIGNEE(S): Tokuyama Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004123586	A	20040422	JP 2002-288430	20021001

PRIORITY APPLN. INFO.: JP 2002-288430 20021001

OTHER SOURCE(S): CASREACT 140:339079; MARPAT 140:339079
ED Entered STN: 22 Apr 2004
GI



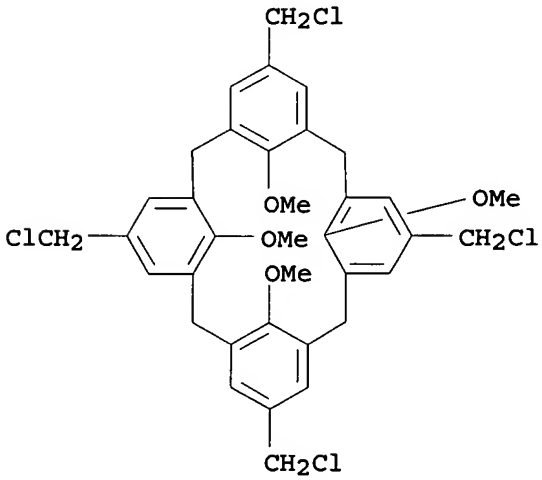
I

AB Calix[4]arenes I [R = (un)substituted C1-10 alkyl] are chloromethylated by HCl and HCHO in reaction systems containing 10-30 weight% H2O to give mixts. of tetrakis- and tris(chloromethylated) I. I (R = Me) (1.21 g) was treated with a mixture of 1,4-dioxane, AcOH, HCl, H3PO4, and 16 weight% H2O under reflux for 2 h to give 0.85 g 51:41 mixture of 5,11,17,23-tetrakis(chloromethyl)-I (R = Me) and 5,11,17-tris(chloromethyl)-I (R = Me).

IT **139934-98-8P 325814-49-1P**
(preparation of chloromethylated calix[4]arene mixts. for neg. electron beam resists)

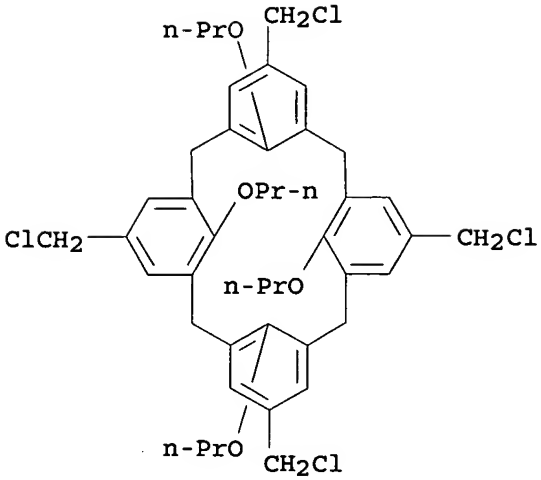
RN 139934-98-8 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetramethoxy- (CA INDEX NAME)



RN 325814-49-1 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy- (CA INDEX NAME)



IC ICM C07C041-22
ICS C07C043-225
CC 25-29 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
Section cross-reference(s): 74
IT **139934-98-8P 325814-49-1P** 673458-26-9P
680223-95-4P
(preparation of chloromethylated calix[4]arene mixts. for neg. electron beam resists)

L24 ANSWER 12 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2004:220297 HCAPLUS
DOCUMENT NUMBER: 140:279682
TITLE: Resist and method of forming resist pattern
INVENTOR(S): Ochiai, Yukinori; Ishida, Masahiko; Fujita, Junichi; Ogura, Takashi; Momoda, Junji; Oshima, Eiji
PATENT ASSIGNEE(S): NEC Corporation, Japan; Tokuyama Corporation
SOURCE: PCT Int. Appl., 28 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004022513	A1	20040318	WO 2003-JP11284	20030904
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003261921	A1	20040329	AU 2003-261921	20030904
EP 1541543	A1	20050615	EP 2003-794216	20030904

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, SK

US 20060127798 A1 20060615 US 2006-527068 20060104
PRIORITY APPLN. INFO.: JP 2002-262314 A 20020909
WO 2003-JP11284 W 20030904

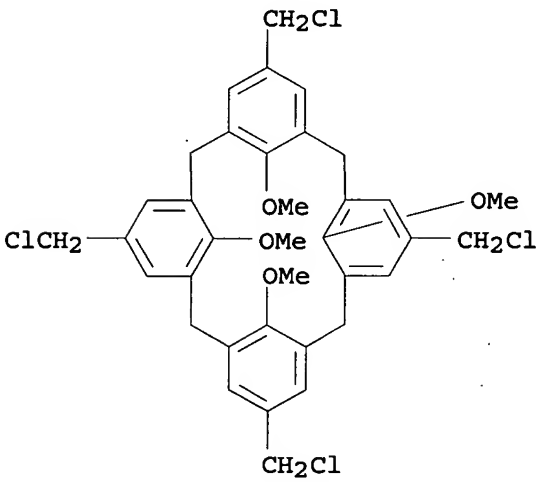
ED Entered STN: 19 Mar 2004

AB A resist comprising either tetrachloromethyltetramethoxycalix[4]arene or trichloromethyltetramethoxycalix[4]arene. The resist containing such a component is soluble in solvents that are favorable from the viewpoint of working environment, such as Et lactate (EL), propylene glycol monomethyl ether (PGME), propylene glycol monomethyl ether acetate (PGMEA), Et propionate, Bu acetate and 2-heptanone, and development can be conducted with not only these solvents but also tetramethylammonium hydroxide. Superhigh resolution of 8 nm can be obtained by exposing the resist to electron beams, and various materials can be microfabricated with the use of the resist as a mask. This resist enables providing a photosensitive resist material of high resolution which is soluble in solvents favorable from the viewpoint of working environment and thus can be developed by solvents favorable from the viewpoint of working environment; and a method of exposure or method of microfabrication with the use of the same.

IT **139934-98-8**
(calixarene-containing electron beam resist and method of forming resist pattern for semiconductor device fabrication)

RN 139934-98-8 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetramethoxy- (CA INDEX NAME)



IC ICM C07C043-225
ICS G03F007-038; G03F007-004

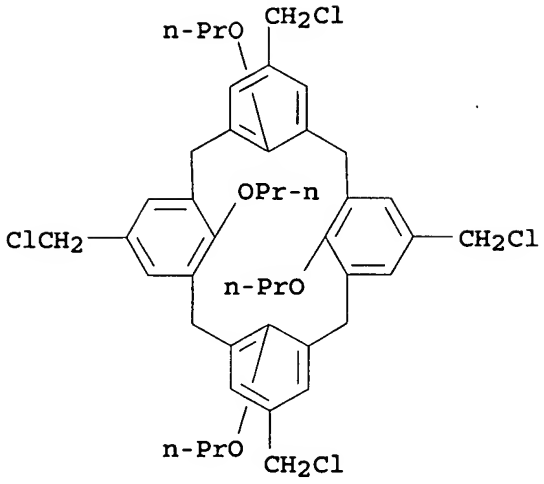
CC 76-3 (Electric Phenomena)
Section cross-reference(s): 38

IT 125065-73-8 **139934-98-8** 673458-26-9 673458-27-0
(calixarene-containing electron beam resist and method of forming resist pattern for semiconductor device fabrication)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR

THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 13 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:761050 HCAPLUS
DOCUMENT NUMBER: 140:357413
TITLE: New organophosphorus calix[4]arene ionophores for trivalent lanthanide and actinide cations
AUTHOR(S): Atamas, L.; Klimchuk, O.; Rudzevich, V.; Pirozhenko, V.; Kalchenko, V.; Smirnov, I.; Babain, V.; Efremova, T.; Varnek, A.; Wipff, G.; Arnaud-Neu, F.; Roch, M.; Saadioui, M.; Boehmer, V.
CORPORATE SOURCE: Institute of Organic Chemistry of the National Academy of Sciences of Ukraine, Kiev, 02094/94, Ukraine
SOURCE: Journal of Supramolecular Chemistry (2003), Volume Date 2002, 2(4-5), 421-427
CODEN: JSCOC9; ISSN: 1472-7862
PUBLISHER: Elsevier Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 140:357413
ED Entered STN: 29 Sep 2003
AB New calix[4]arene phosphoryl derivs. were prepared, starting from a calix[4]arene (cone conformer) bearing four P(O)-H functional groups at the wide rim as synthon. Reaction of 25,26,27,28-tetrapropoxy-5,11,17,23-tetrakis(chloromethyl)calix[4]arene (7) with PhP(OiPr)2 gave the 5,11,17,23-tetrakis[(isopropoxy)phenylphosphinyl] derivative (8), which was reduced to hydro(phenyl)phosphinyl derivative (9) and converted to Z[CH2PO(Ph)CH2CONBu2]4 and Z[CH2PO(Ph)CH2CH2POPh2]4 (10, 11; Z = 25,26,27,28-tetrapropoxycalix[4]arene-5,11,17,23-tetrayl). Binding properties of 10 and 11 towards trivalent lanthanide and actinide cations are investigated by complexation studies in methanol, and liquid-liquid extraction studies. The carbamoylmethylphosphine oxide and diphosphine dioxide derivs. display the "calixarene effect", i.e., they are more efficient than their constitutive binding sites. The studies also reveal the importance of the attachment mode of CMPO-functions to the calixarene platform for the cation binding properties.
IT **325814-49-1**
(phosphinylation; preparation of phosphinyl-substituted calix[4]arenes and complexation with lanthanides and actinides)
RN 325814-49-1 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy- (CA INDEX NAME)



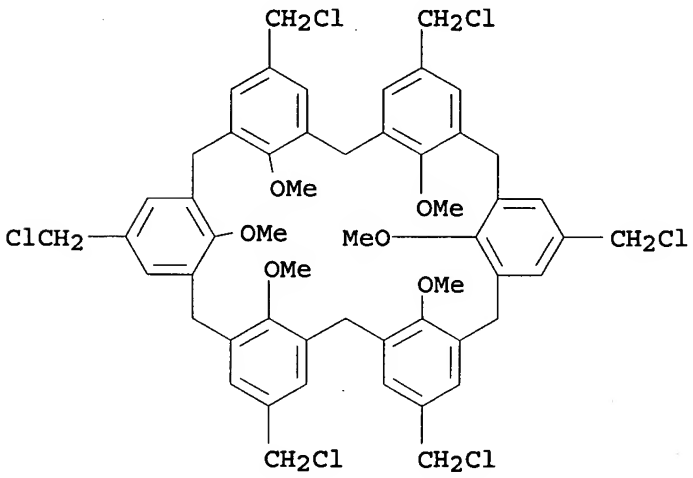
CC 29-7 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 25
IT 2155-96-6, Diphenylvinylphosphine 2567-59-1, N,N-Dibutyl-2-chloroacetamide **325814-49-1**
(phosphinylation; preparation of phosphinyl-substituted calix[4]arenes and complexation with lanthanides and actinides)
REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 14 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:735194 HCAPLUS
DOCUMENT NUMBER: 139:252516
TITLE: Photoresists comprising high-purity calixarenes with suppressed crystallization, and resist pattern formation and micromachining using them
INVENTOR(S): Fujita, Junichi; Ishida, Masahiko; Ochiai, Yukinori; Yamamoto, Hiromasa; Tono, Seiji
PATENT ASSIGNEE(S): NEC Corp., Japan; Tokuyama Corp.
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003262950	A	20030919	JP 2002-66302	20020312
JP 3957533	B2	20070815		
PRIORITY APPLN. INFO.:			JP 2002-66302	20020312

ED Entered STN: 19 Sep 2003
AB The photoresists, useful for semiconductor device fabrication, contain ≥2 types of high-purity calixarenes as binders. Patterns with size ≤10 nm are formed with this invention.
IT **124006-38-8**
(photoresists comprising high-purity calixarenes with suppressed crystallization)
RN 124006-38-8 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



IC ICM G03F007-004
ICS G03F007-40; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
IT **124006-38-8**
(photoresists comprising high-purity calixarenes with suppressed crystallization)

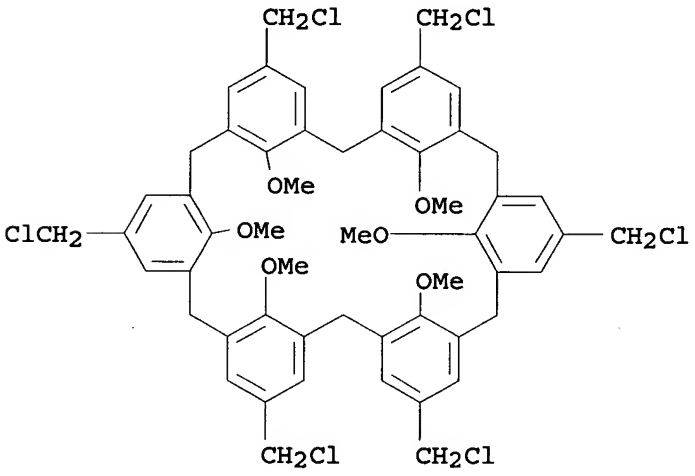
L24 ANSWER 15 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:563319 HCAPLUS
DOCUMENT NUMBER: 139:260903
TITLE: Capsule-like Assemblies in Polar Solvents
AUTHOR(S): Zadmard, Reza; Junkers, Matthias; Schrader, Thomas; Grawe, Thomas; Kraft, Arno
CORPORATE SOURCE: Fachbereich Chemie, Universitaet Marburg, Marburg, 35032, Germany
SOURCE: Journal of Organic Chemistry (2003), 68(17), 6511-6521
CODEN: JOCEAH; ISSN: 0022-3263
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 139:260903
ED Entered STN: 24 Jul 2003
AB Calix[4]arene derivs. with four anionic groups at their upper rim form discrete 1:1 complexes with complementary calix[4]arene derivs. bearing four cationic groups at their upper rim. Each cation is bound by two anions, and vice versa, in a mutual chelate arrangement, reinforced by a network of ionic hydrogen bonds. These multiple electrostatic interactions lead to the formation of highly stable capsule-like assemblies even in polar protic solvents such as methanol and water. In the capsule interior a cavity is formed that is in principle large enough for the encapsulation of small aliphatic and aromatic guests (170-230 Å3). Monte Carlo simulations in water reproducibly lead to the same regular optimized structures. These

differ mainly by their inner volume and flexibility, as demonstrated by mol. dynamics calcns. Most half-spheres can be synthesized by way of the tetrakis(chloromethyl) or the tetrabromocalix[4]arene intermediate. Oppositely charged calix[6]arenes also form strong complexes, but no indication was found for a lock in the cone conformation. The formation of the ball-shaped complexes from calix[4]arene building blocks was studied with Job plots, NMR titrns., NOESY, and variable-temperature expts., as well as ESI-MS measurements. Investigations aimed at the inclusion of various guest mols. were carried out with alcs., sulfoxides, benzene derivs., and ammonium, as well as pyrazinium guests. Although binding isotherms were generated with cationic guests, these must be considered to be loosely associated around the seam rather than included inside the capsule.

IT **124006-38-8P 435332-10-8P**
(mol. dynamics simulation, NMR titrns., NOESY, and ESI-MS on capsule-like assemblies of calixarenes in polar solvents)

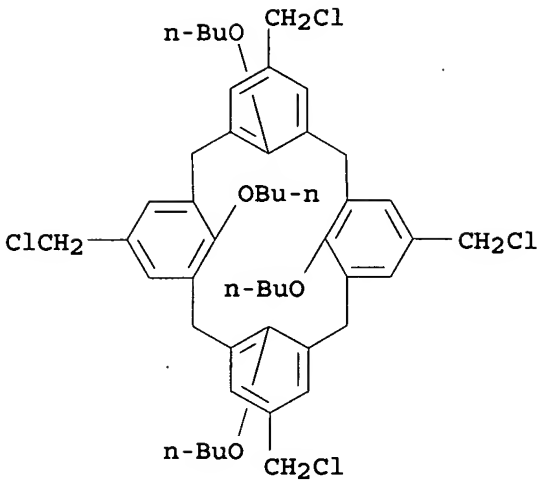
RN 124006-38-8 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



RN 435332-10-8 HCAPLUS

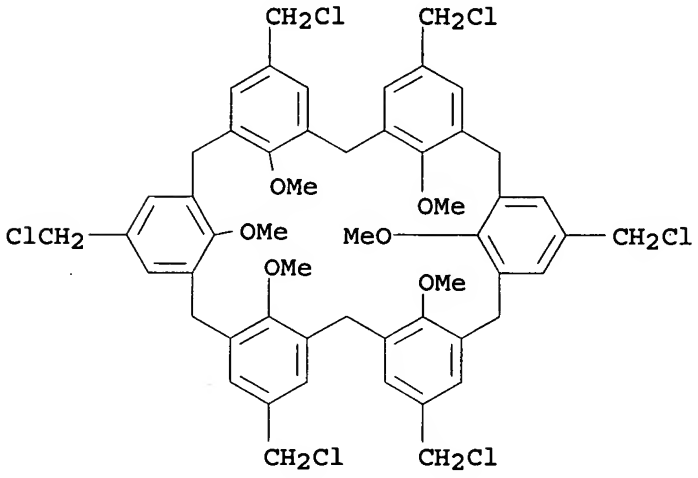
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 25,26,27,28-tetrabutoxy-5,11,17,23-tetrakis(chloromethyl)- (CA INDEX NAME)



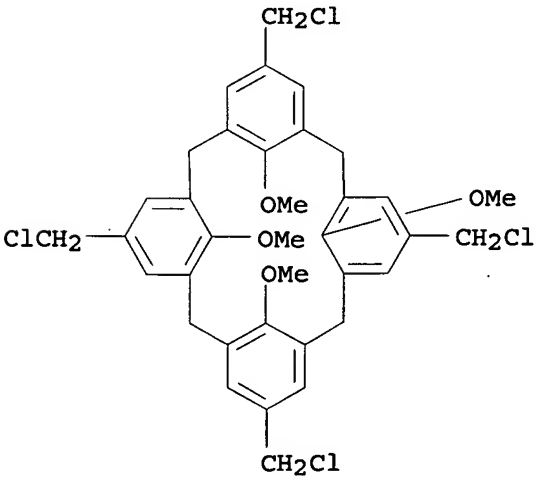
CC 22-10 (Physical Organic Chemistry)
Section cross-reference(s): 25, 73, 80
IT 102088-39-1P **124006-38-8P** 202348-47-8P
435332-10-8P 435332-12-0P 435332-19-7P 435332-23-3P
435332-25-5P 436148-33-3P 436148-35-5P 464172-15-4P
602299-46-7P 602299-49-0P
(mol. dynamics simulation, NMR titrns., NOESY, and ESI-MS on capsule-like assemblies of calixarenes in polar solvents)
REFERENCE COUNT: 77 THERE ARE 77 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 16 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:547063 HCAPLUS
DOCUMENT NUMBER: 139:237578
TITLE: Sub-10-nm-scale lithography using p-chloromethyl-methoxy-calix[4]arene resist
AUTHOR(S): Ishida, Masahiko; Fujita, Jun-ichi; Ogura, Takashi; Ochiai, Yukinori; Ohshima, Eiji; Momoda, Junji
CORPORATE SOURCE: Fundamental Research Laboratories, NEC Corp., Tsukuba, 305-8501, Japan
SOURCE: Japanese Journal of Applied Physics, Part 1: Regular Papers, Short Notes & Review Papers (2003), 42(6B), 3913-3916
CODEN: JAPNDE
PUBLISHER: Japan Society of Applied Physics
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 17 Jul 2003
AB The authors examined the properties of p-chloromethylmethoxycalix[4]aren e (CMC4) as a high-resolution neg.-tone resist for electron-beam (EB) lithog. CMC4's highest resolution was less than 8 nm, and of the calixarene resists studied so far, it has the highest solubility in Cl-free solvents. Comparison with the p-chloromethylmethoxycalix[6]arene (CMC6) resist revealed that the CMC4 resist's low mol. weight and low crystallinity were the origin of its high resolution and high solubility
IT **124006-38-8**
(comparison compound; properties of p-chloromethylmethoxycalix[4]aren e as high-resolution neg.-tone resist for electron-beam lithog.)

RN 124006-38-8 HCAPLUS
CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



IT **139934-98-8**
(properties of p-chloromethylmethoxycalix[4]arene as high-resolution neg.-tone resist for electron-beam lithog.)
RN 139934-98-8 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetramethoxy- (CA INDEX NAME)



CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
IT **124006-38-8**
(comparison compound; properties of p-chloromethylmethoxycalix[4]arene as high-resolution neg.-tone resist for electron-beam lithog.)

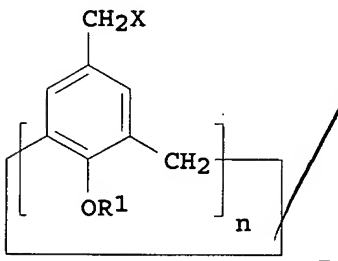
IT **139934-98-8**
(properties of p-chloromethylmethoxycalix[4]arene as high-resolution neg.-tone resist for electron-beam lithog.)
REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 17 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:527539 HCAPLUS
DOCUMENT NUMBER: 139:85127
TITLE: Preparation of solvent-soluble calixarenes and their smooth films
INVENTOR(S): Oshima, Eiji; Takenaka, Junji
PATENT ASSIGNEE(S): Tokuyama Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003192649	A	20030709	JP 2001-397522	20011227

PRIORITY APPLN. INFO.: JP 2001-397522 20011227

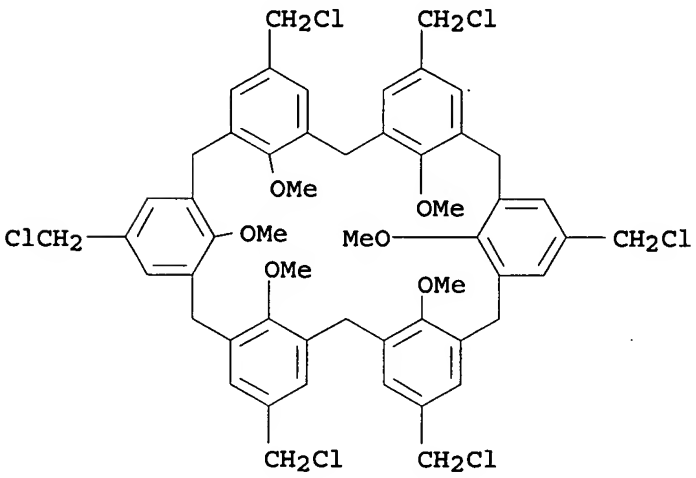
OTHER SOURCE(S): MARPAT 139:85127
ED Entered STN: 10 Jul 2003
GI



I

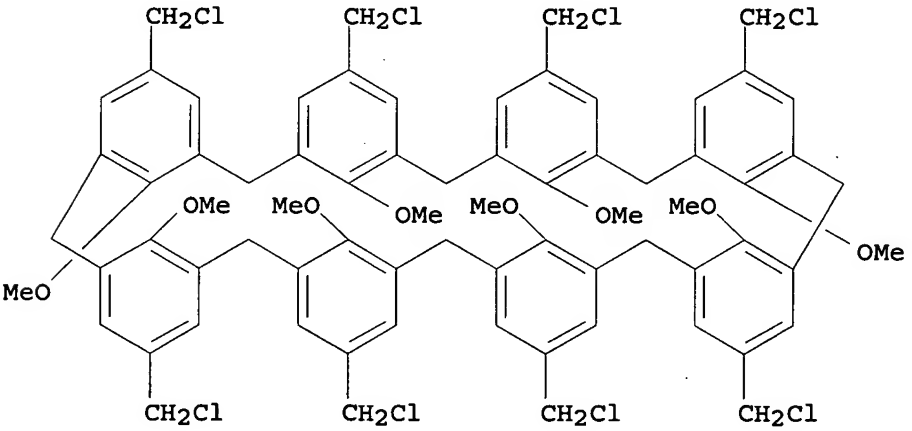
AB Title compds. I [n = 4-10; R1 = (cyclo)alkyl, alkenyl, (meth)acryloyl, etc.; X = NR2R3; R2, R3 = H, (un)substituted alkyl, alkenyl, aryl; R2 = R3 ≠ H; R2R3 may be linked to form ring], useful for electron beam resists (no data), are prepared by amination of I (n, R1 = same as above; X = Cl). Thus, I (n = 6, R1 = Me, X = Cl) was aminated by Et2NH at 50° for 3 h in CHCl3 to give 74% I (n, R1 = same as above; X = NEt2), which showed high solubility in various organic solvents and no crystallization when formed into a film.
IT **124006-38-8 124006-39-9 139934-98-8 476687-13-5 556066-52-5 556066-54-7 556066-55-8 556066-56-9**
(preparation of solvent-soluble calixarenes and their crystal-free films for electron beam resists)
RN 124006-38-8 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



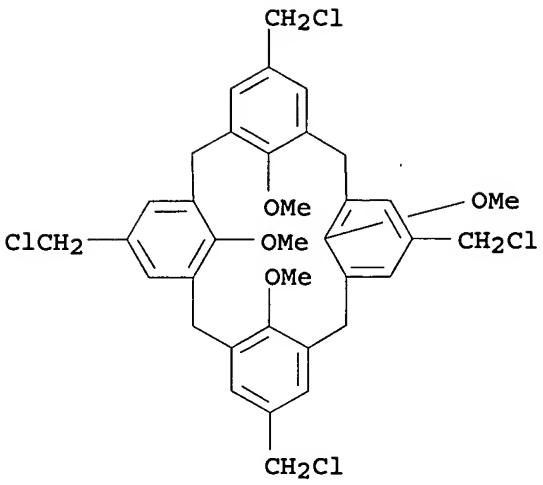
RN 124006-39-9 HCAPLUS

CN Nonacyclo[43.3.1.13,7.19,13.115,19.121,25.127,31.133,37.139,43]hexapentaconta-1(49),3,5,7(56),9,11,13(55),15,17,19(54),21,23,25(53),27,29,31(52),33,35,37(51),39,41,43(50),45,47-tetracosaene, 5,11,17,23,29,35,41,47-octakis(chloromethyl)-49,50,51,52,53,54,55,56-octamethoxy- (CA INDEX NAME)

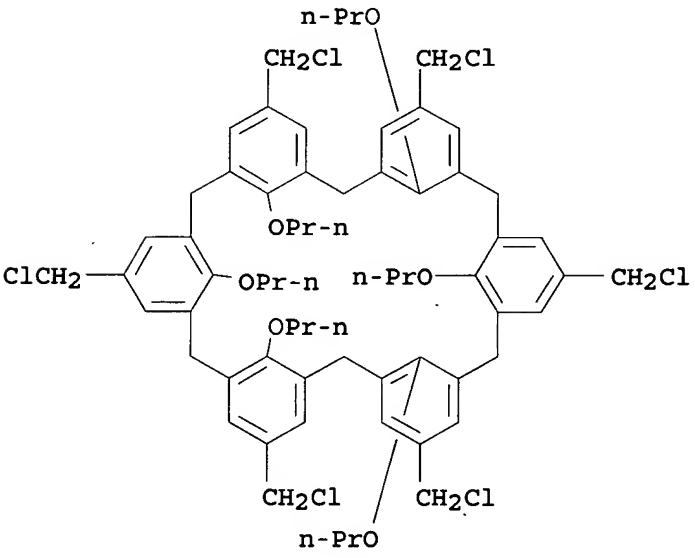


RN 139934-98-8 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetramethoxy- (CA INDEX NAME)

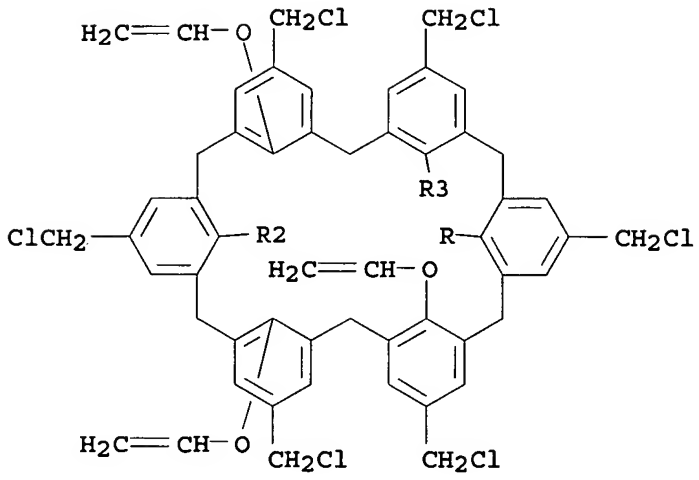


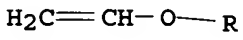
RN 476687-13-5 HCAPLUS
CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexapropoxy- (CA INDEX NAME)



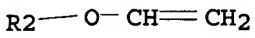
RN 556066-52-5 HCAPLUS
CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexakis(ethenyloxy)- (CA INDEX NAME)

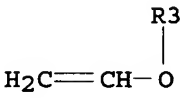
PAGE 1-A



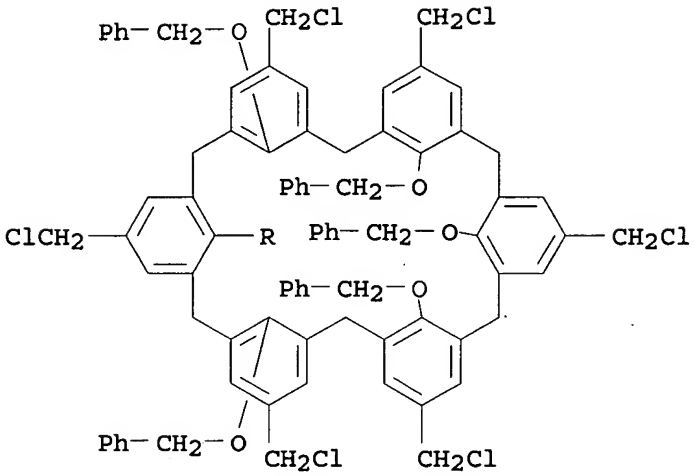


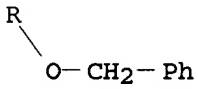
PAGE 2-A





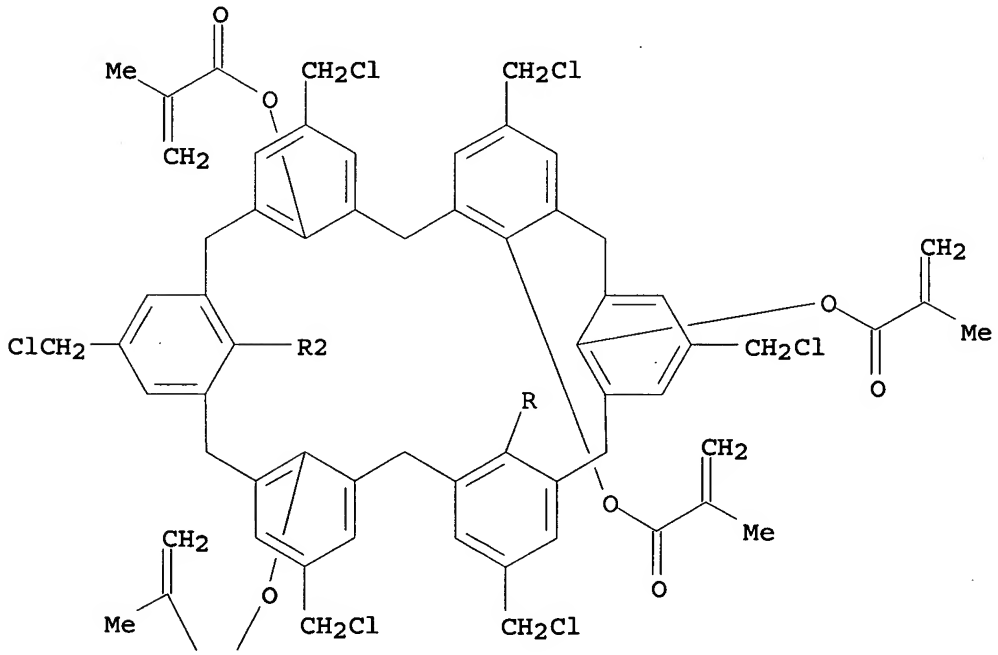
RN 556066-54-7 HCAPLUS
CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexakis(phenylmethoxy)- (CA INDEX NAME)



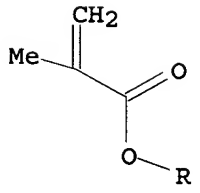


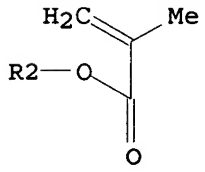
RN 556066-55-8 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 5,11,17,23,29,35-hexakis(chloromethyl)heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene-37,38,39,40,41,42-hexayl ester (9CI) (CA INDEX NAME)

PAGE 1-A

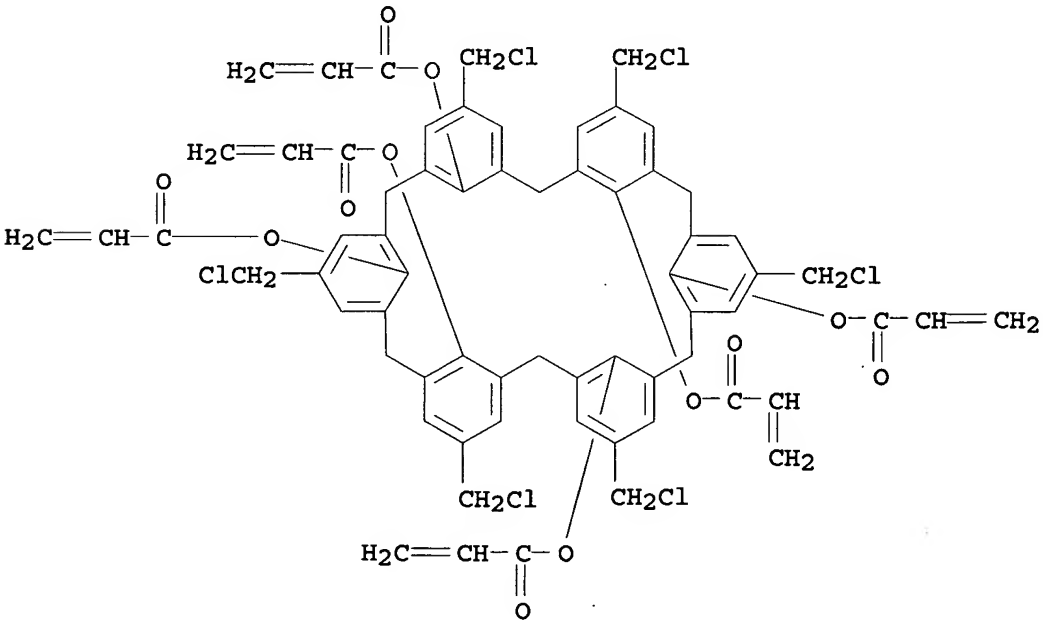


PAGE 2-A





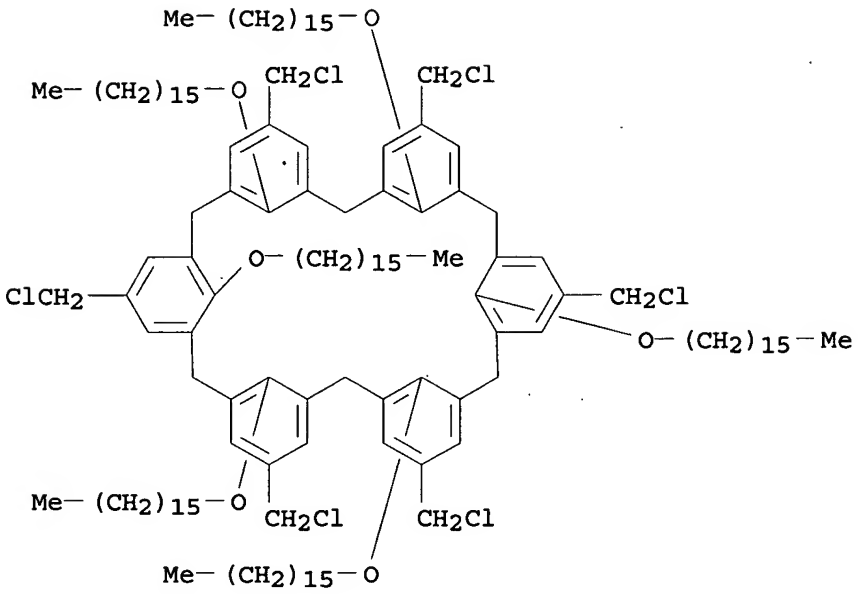
RN 556066-56-9 HCAPLUS
CN 2-Propenoic acid, 5,11,17,23,29,35-hexakis(chloromethyl)heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene-37,38,39,40,41,42-hexayl ester (9CI) (CA INDEX NAME)



IC ICM C07C217-58
ICS C07C213-02; C07C219-28; C07D295-08; G03F007-038

CC 25-29 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
Section cross-reference(s): 74
IT 109-73-9, Butylamine, reactions 109-83-1, (2-Hydroxyethyl)methylamine 109-89-7, Diethylamine, reactions 110-89-4, Piperidine, reactions 111-42-2, Diethanolamine, reactions 122-39-4, Diphenylamine, reactions 124-02-7, Diallylamine 142-84-7, Dipropylamine 39216-86-9 **124006-38-8** **124006-39-9** **139934-98-8** **476687-13-5** 556066-51-4 **556066-52-5** 556066-53-6 **556066-54-7** **556066-55-8** **556066-56-9**
(preparation of solvent-soluble calixarenes and their crystal-free films for electron beam resists)

L24 ANSWER 18 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:459794 HCAPLUS
DOCUMENT NUMBER: 139:155440
TITLE: The Gluing of a Langmuir-Blodgett Bilayer
AUTHOR(S): Yan, Xun; Janout, Vaclav; Hsu, James T.; Regen, Steven L.
CORPORATE SOURCE: Departments of Chemistry and Chemical Engineering, Lehigh University, Bethlehem, PA, 18015, USA
SOURCE: Journal of the American Chemical Society (2003), 125(27), 8094-8095
CODEN: JACSAT; ISSN: 0002-7863
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 17 Jun 2003
AB Poly(4-styrenesulfonate) has been used to ionically cross-link (glue together) a single Langmuir-Blodgett bilayer derived from an amphiphilic calix[6]arene bearing six hexadecyl and six methylene-trimethylammonium groups. The resulting film is of high quality and robustness, as judged by its He/N2 permeation selectivity and by its ability to withstand exposure to chloroform solvent. The creation of a stable organic membrane, having a thickness that is less than 6 nm and a He/N2 permeation selectivity of ca. 305, represents a milestone for LB technol.
IT **471296-05-6**
(to synthesize amphiphilic calix[6]arene)
RN 471296-05-6 HCAPLUS
CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexakis(hexadecyloxy)- (CA INDEX NAME)



CC 66-3 (Surface Chemistry and Colloids)
Section cross-reference(s): 25
IT 75-50-3, Trimethylamine, reactions 123-91-1, 1,4-Dioxane, reactions **471296-05-6**
(to synthesize amphiphilic calix[6]arene)
REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

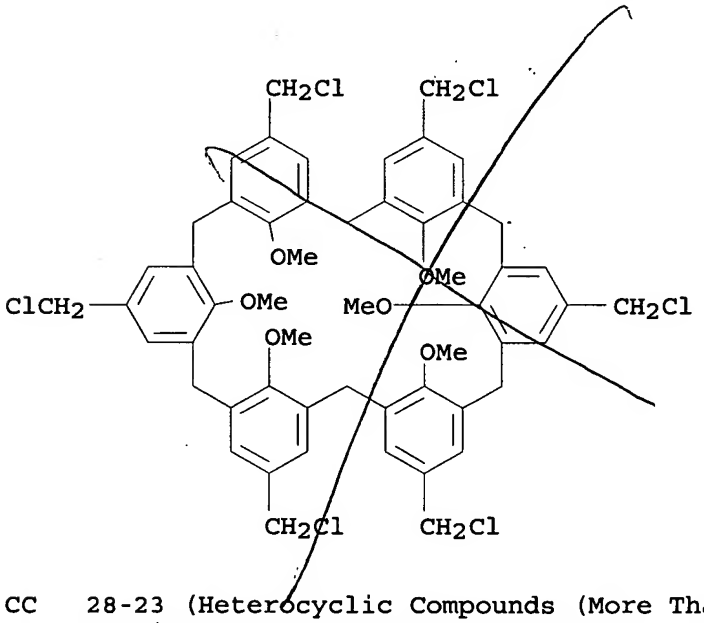
L24 ANSWER 19 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:229922 HCAPLUS
DOCUMENT NUMBER: 139:85323
TITLE: Synthesis and extractive properties of hexaphosphorylated calix[6]arenes
AUTHOR(S): Rudzevich, Yu. I.; Drapailo, A. B.; Rudzevich, V. L.; Miroshnichenko, V. I.; Kal'chenko, V. I.; Smirnov, I. V.; Babain, V. A.; Varnek, A. A.; Wipff, G.
CORPORATE SOURCE: Institute of Organic Chemistry, National Academy of Sciences of Ukraine, Kiev, Ukraine
SOURCE: Russian Journal of General Chemistry (Translation of Zhurnal Obshchei Khimii) (2002), 72(11), 1736-1742
CODEN: RJGCEK; ISSN: 1070-3632
PUBLISHER: MAIK Nauka/Interperiodica Publishing
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 139:85323
ED Entered STN: 25 Mar 2003
AB A series of calix[6]arenes substituted with phosphoryl functional groups were prepared by the Arbuzov reaction of hexakis(chloromethyl)calix[6]arene hexamethyl ether with iso-Pr esters of trivalent phosphorus acids, followed by appropriate chemical transformations. Mol. modeling and NMR data show that phosphorylated calix[6]arenes exist in the stereochem. labile 1,2-alternate conformation. The extractive power of these compds. with respect to

americium and europium was studied. Due to the cooperative binding of the metal cation with phosphoryl groups, the phosphorylated calixarenes are more effective extractants than their acyclic analogs and com. organophosphorus extractants.

IT **124006-38-8**
(preparation of hexaphosphorylated calixarenes via Arbuzov reaction followed by chemical transformations and their extraction performance for recovery of europium-152 and americium-241)

RN 124006-38-8 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



CC 28-23 (Heterocyclic Compounds (More Than One Hetero Atom))
Section cross-reference(s): 68

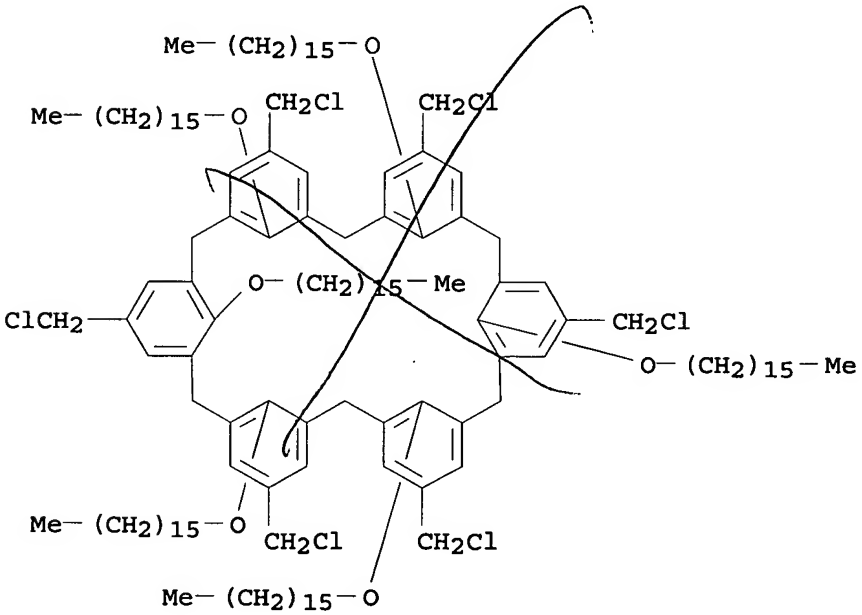
IT 116-17-6 27350-46-5 36238-99-0 76297-11-5 **124006-38-8** 556837-86-6
(preparation of hexaphosphorylated calixarenes via Arbuzov reaction followed by chemical transformations and their extraction performance for recovery of europium-152 and americium-241)

REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 20 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2002:624670 HCAPLUS
DOCUMENT NUMBER: 137:311855
TITLE: A Polymerized Calix[6]arene Monolayer Having Gas Permeation Selectivity that Exceeds Knudsen Diffusion
AUTHOR(S): Yan, Xun; Janout, Vaclav; Hsu, James T.; Regen, Steven L.
CORPORATE SOURCE: Departments of Chemistry and Chemical Engineering, Lehigh University, Bethlehem, PA, 18015, USA
SOURCE: Journal of the American Chemical Society (2002), 124(37), 10962-10963
CODEN: JACSAT; ISSN: 0002-7863
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal

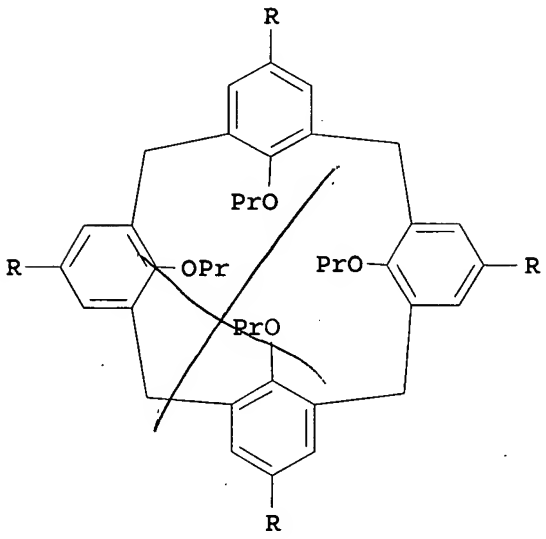
LANGUAGE: English
ED Entered STN: 20 Aug 2002
AB A polymerized monolayer of 5,11,17,23,29,35-hexamercaptomethyl-37,38,40,41,42-hexakis-(1-n hexadecyloxy)calix[6]arene was synthesized on the surface of an ca. 15 μm-thick film derived from poly[1-(trimethylsilyl)-1-propyne] (PTMSP). This 2.6 nm-thick polymeric membrane having a permeation selectivity toward He and SF6 that exceeds Knudsen diffusion, represents a milestone in the area of gas sepns. Analogous membranes made from a calix[6]arene that contains amidoxime headgroups showed Knudsen diffusion characteristics.
IT **471296-05-6P**
(crosslinked calix[6]arene monolayer having gas permeation selectivity toward He and SF6 that exceeds Knudsen diffusion)
RN 471296-05-6 HCAPLUS
CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexakis(hexadecyloxy)- (CA INDEX NAME)



CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 66
IT **471296-05-6P** 471296-06-7P
(crosslinked calix[6]arene monolayer having gas permeation selectivity toward He and SF6 that exceeds Knudsen diffusion)
REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

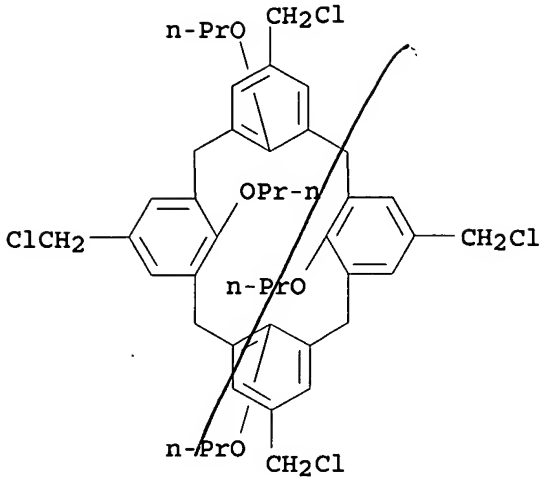
L24 ANSWER 21 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2002:623780 HCAPLUS
DOCUMENT NUMBER: 138:4649
TITLE: Phosphorylated calixarenes in design of receptors for metal cations and organic molecules
AUTHOR(S): Kalchenko, V.; Atamas, L.; Klimchuk, O.; Rudzevich, V.; Rudzevich, Yu.; Boyko, V.;

Drapailo, A.; Miroshnichenko, S.
CORPORATE SOURCE: Institute of Organic Chemistry, National Academy of Sciences of Ukraine, Kiev, 02094/94, Ukraine
SOURCE: Phosphorus, Sulfur and Silicon and the Related Elements (2002), 177(6-7), 1537-1540
CODEN: PSSLEC; ISSN: 1042-6507
PUBLISHER: Taylor & Francis Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 138:4649
ED Entered STN: 19 Aug 2002
GI

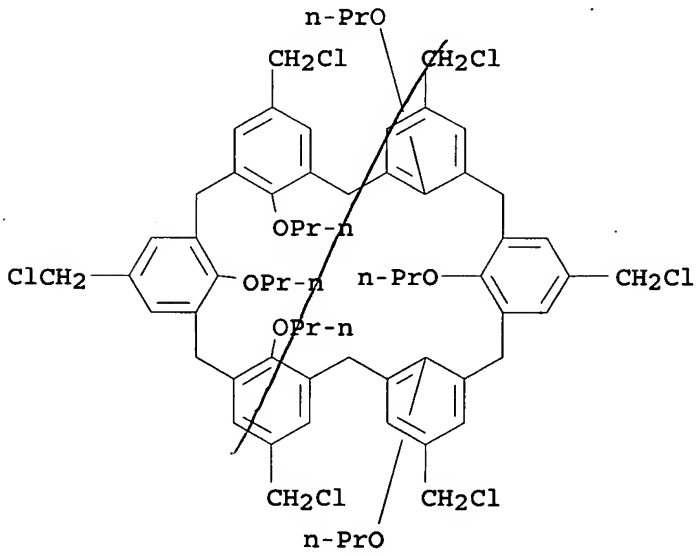


I

AB Calix[4,6]arenes functionalized with phosphine oxide, diphosphine dioxide, and carbamoylphosphine oxide groups, which possess high binding ability to metal cations or protodonative organic mols. and are linked to the wide rim of macrocyclic skeleton by different spacers, e.g., I (R = CH2XCH2P(O)Ph2, X = O, S) was synthesized.
IT **325814-49-1 476687-13-5**
(Arbuzov and Michaelis-Becker reactions in the synthesis of phosphorylated calixarenes)
RN 325814-49-1 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy- (CA INDEX NAME)



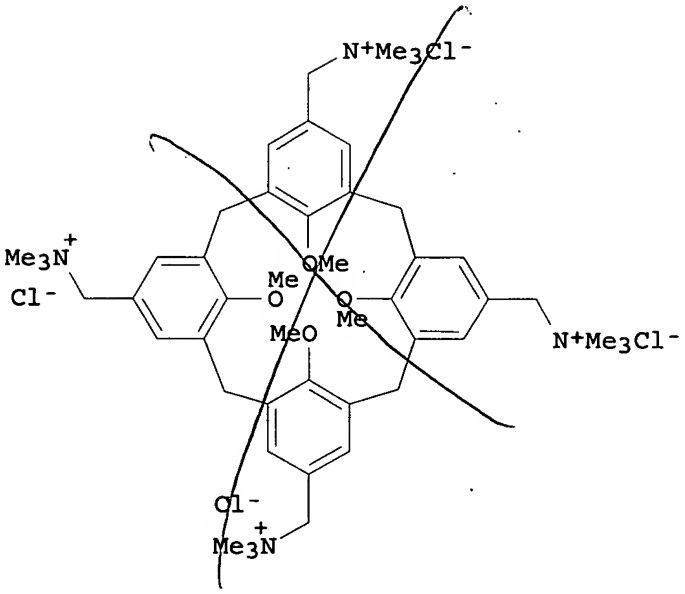
RN 476687-13-5 HCAPLUS
CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexapropoxy- (CA INDEX NAME)



CC 29-7 (Organometallic and Organometalloidal Compounds)
IT 20625-85-8 42023-31-4 81261-21-4 92556-46-2 **325814-49-1** **476687-13-5** 476687-23-7 476687-24-8 476687-26-0 476687-27-1 476687-28-2
(Arbuzov and Michaelis-Becker reactions in the synthesis of phosphorylated calixarenes)
REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 22 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2002:519362 HCAPLUS
DOCUMENT NUMBER: 137:384434
TITLE: Water-soluble calixarenes as new inverse phase-transfer catalysts. Their scope in aqueous biphasic alkylations and mechanistic implications
AUTHOR(S): Shimizu, Shoichi; Suzuki, Takashi; Shirakawa, Seiji; Sasaki, Yasuyuki; Hirai, Choichiro
CORPORATE SOURCE: Department of Applied Molecular Chemistry and High Technology Research Center, College of Industrial Technology, Nihon University, Chiba, 275-8575, Japan
SOURCE: Advanced Synthesis & Catalysis (2002), 344(3+4), 370-378
CODEN: ASCAF7; ISSN: 1615-4150
PUBLISHER: Wiley-VCH Verlag GmbH
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 137:384434
ED Entered STN: 12 Jul 2002
GI



I

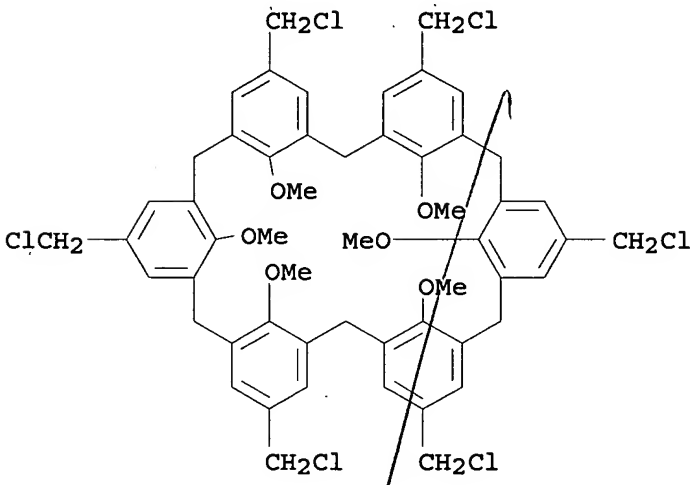
AB Water-soluble calix[n]arenes (n = 4, 6, 8) containing trimethylammonium groups on the upper rim, e.g. calix[4]arene I, were used as inverse phase-transfer catalysts for alkylation of active methylene compds., alcs., and phenols with alkyl halides in aqueous NaOH solution to give the corresponding alkylated products in good to high yields. The scope of this methodol. in aqueous biphasic alkylation reactions and the mechanistic implications are discussed.

IT **124006-38-8 124006-39-9 139934-98-8**
(selective aqueous biphasic alkylation of alcs., phenols, and active methylene compds. with alkyl halides using water-soluble calixarenes as inverse phase-transfer catalysts)

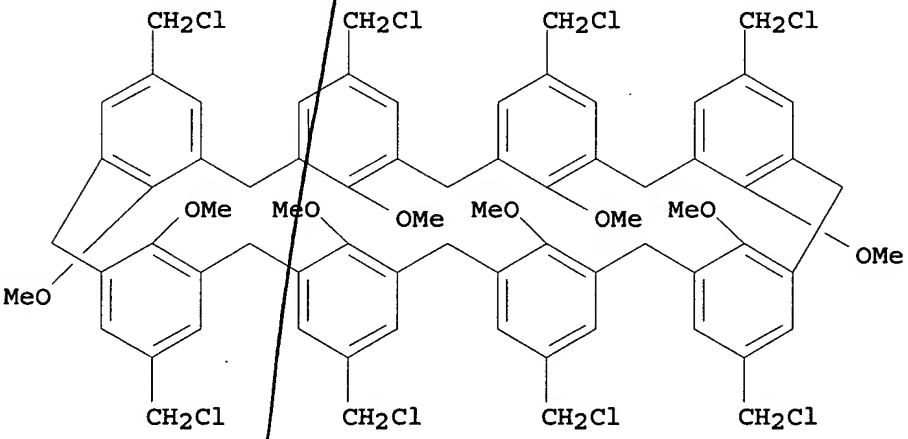
RN 124006-38-8 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,

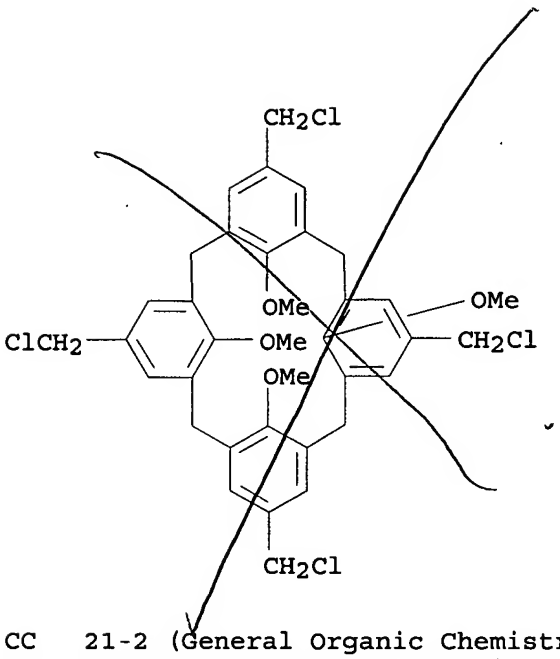
35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-
37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



RN 124006-39-9 HCAPLUS
CN Nonacyclo[43.3.1.13,7.19,13.115,19.121,25.127,31.133,37.139,43]hexapentaconta-1(49),3,5,7(56),9,11,13(55),15,17,19(54),21,23,25(53),27,29,31(52),33,35,37(51),39,41,43(50),45,47-tetracosaene, 5,11,17,23,29,35,41,47-octakis(chloromethyl)-49,50,51,52,53,54,55,56-octamethoxy- (CA INDEX NAME)



RN 139934-98-8 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetramethoxy- (CA INDEX NAME)



CC 21-2 (General Organic Chemistry)

IT 71-36-3, 1-Butanol, reactions 95-13-6, Indene 100-39-0, Benzyl bromide 100-51-6, Benzyl alcohol, reactions 103-79-7, Phenylacetone 106-44-5, 4-Methylphenol, reactions 107-18-6, Allyl alcohol, reactions 108-95-2, Phenol, reactions 110-52-1, 1,4-Dibromobutane 111-25-1, 1-Bromohexane 111-27-3, 1-Hexanol, reactions 111-83-1, Octyl bromide 111-85-3, Octyl chloride 123-54-6, Acetylacetone, reactions 132-75-2, 1-Naphthaleneacetonitrile 140-29-4, Benzeneacetonitrile 557-35-7, 2-Bromooctane 589-15-1 589-29-7, 1,4-Benzenedimethanol 614-16-4, Benzoylacetonitrile 629-27-6, Octyl iodide 939-26-4, 2-(Bromomethyl)naphthalene 1119-51-3, 5-Bromo-1-pentene 1592-38-7, 2-Naphthalenemethanol 2517-43-3, 3-Methoxy-1-butanol 2550-36-9, (Bromomethyl)cyclohexane 2856-63-5 3163-27-7, 1-(Bromomethyl)naphthalene 6940-78-9, 1-Bromo-4-chlorobutane 18880-00-7 **124006-38-8 124006-39-9 139934-98-8**
(selective aqueous biphasic alkylation of alcs., phenols, and active methylene compds. with alkyl halides using water-soluble calixarenes as inverse phase-transfer catalysts)

REFERENCE COUNT: 92 THERE ARE 92 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 23 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2002:336614 HCAPLUS

DOCUMENT NUMBER: 137:225695

TITLE: The structure of new heterometallic Ru/M (M = Cu, Ni, Co, Zn) complexes investigated by combined spectroscopic and modeling studies

AUTHOR(S): Torgov, V.; Erenburg, S.; Bausk, N.; Stoyanov, E.; Kalchenko, V.; Varnek, A.; Wipff, G.

CORPORATE SOURCE: Institute of Inorganic Chemistry, Siberian Branch Ac. Sci. Russ., Novosibirsk, Russia

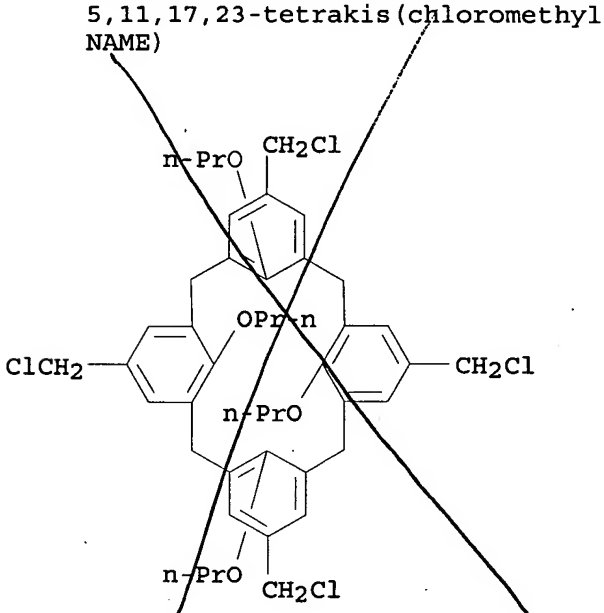
SOURCE: Journal of Molecular Structure (2002), 611(1-3), 131-138
CODEN: JMOSB4; ISSN: 0022-2860

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 137:225695
ED Entered STN: 06 May 2002
AB This article concerns new heterometallic Ru/M (M = Cu, Ni, Co, Zn) complexes formed upon solvent extraction of [RuNO(NO2)4OH]2- by trioctylphosphine oxide or calix[4]arene-tetraphosphine oxide. They were characterized by IR, UV, EXAFS, and mass spectroscopies in hexane and dichloroethane solns. and by quantum mechanics calcns. (PM3-tm, DFT B3LYP) in the gas phase. In these complexes, Ru and M are connected by OH and NO2 bridging groups.
IT **325814-49-1**
(for preparation of calix[4]arene-tetraphosphine oxide)
RN 325814-49-1 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy- (CA INDEX NAME)



CC 78-7 (Inorganic Chemicals and Reactions)
Section cross-reference(s): 79
IT 24610-84-2 **325814-49-1**
(for preparation of calix[4]arene-tetraphosphine oxide)
REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 24 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2002:294402 HCAPLUS
DOCUMENT NUMBER: 137:33060
TITLE: Self-Assembly of Molecular Capsules in Polar Solvents
AUTHOR(S): Zadmard, Reza; Schrader, Thomas; Grawe, Thomas; Kraft, Arno
CORPORATE SOURCE: Fachbereich Chemie, Universitaet Marburg, Marburg, 35032, Germany
SOURCE: Organic Letters (2002), 4(10), 1687-1690
CODEN: ORLEF7; ISSN: 1523-7060
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 137:33060

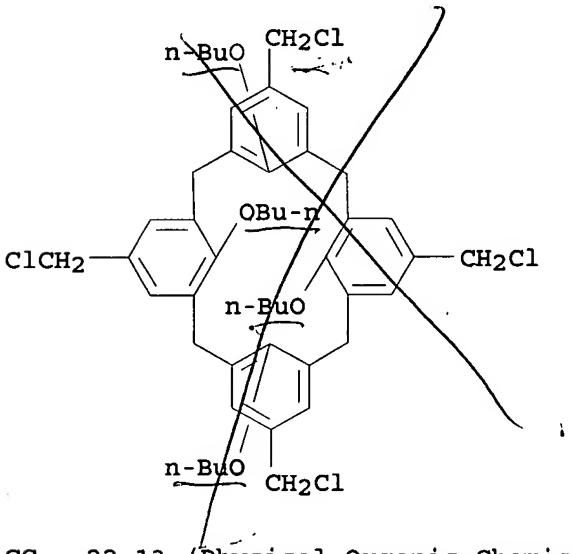
ED Entered STN: 21 Apr 2002

AB We present a novel type of mol. capsule formed by self-organization of calix[4]arenes with several oppositely charged functional groups located at their upper rims. In highly polar solvents, the complementary half-spheres form stable 1:1 complexes with association consts. of up to 7 + 105 M-1 in methanol. The cavity inside the capsules is large enough for the inclusion of small aliphatic or (hetero)aromatic guest mols.

IT **435332-10-8**
(starting material; self-organization of calix[4]arenes with several oppositely charged functional groups located at their upper rims)

RN 435332-10-8 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 25,26,27,28-tetrabutoxy-5,11,17,23-tetrakis(chloromethyl)- (CA INDEX NAME)



CC 22-13 (Physical Organic Chemistry)

IT **435332-10-8** 436148-33-3 464172-15-4
(starting material; self-organization of calix[4]arenes with several oppositely charged functional groups located at their upper rims)

REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 25 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2002:207118 HCAPLUS

DOCUMENT NUMBER: 136:385933

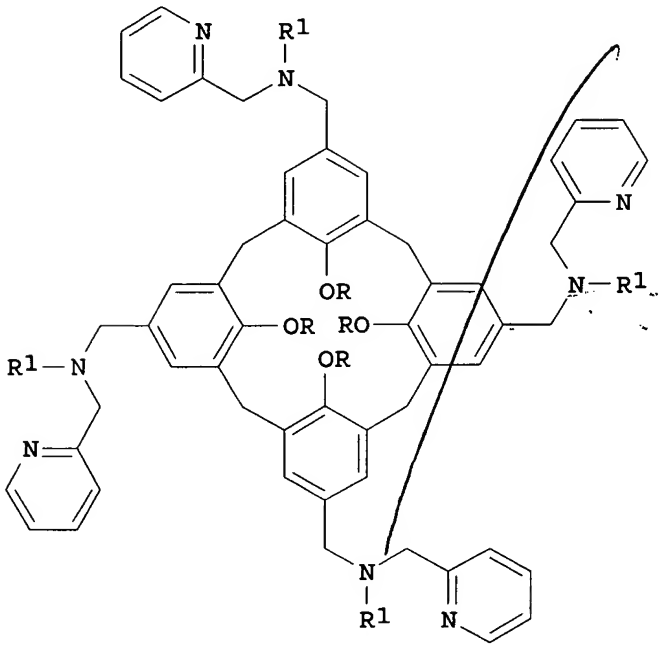
TITLE: Calix[4]arenes Linked to Multiple Bidentate N-Donors: Potential Ligands for Synthetic Modeling of Multinuclear Metalloenzymes

AUTHOR(S): Spencer, Douglas J. E.; Johnson, Bryan J.; Johnson, Brian J.; Tolman, William B.

CORPORATE SOURCE: Department of Chemistry and Center for Metals in Biocatalysis, University of Minnesota, Minneapolis, MN, 55455, USA

SOURCE: Organic Letters (2002), 4(8), 1391-1393
CODEN: ORLEF7; ISSN: 1523-7060

PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 136:385933
ED Entered STN: 20 Mar 2002
GI



I

AB Calixarenes incorporating three or four bidentate diamines or heterocyclylmethanamines attached at the "upper rim" such as I (R = EtOCH2CH2; R1 = Me2CH, PhCH2) were prepared via practical protocols. Alkylation of a tetrahydroxycalix[4]arene with excess 2-ethoxyethyl bromide and sodium hydride gave a tetra(2-ethoxyethyl)calixarene; tetraformylation, reduction of the aldehyde groups with sodium borohydride, and chlorination with thionyl chloride gave a tetrachloromethyl calixarene which is a versatile intermediate for the preparation of substituted calixarenes. An analogous method using a trisformylation reaction gave the corresponding tris(chloromethyl)calixarene. Substitution of the chloromethyl groups with amines such as N,N,N'-trimethyl-1,3-propanediamine, N-isopropyl-2-pyridinemethanamine, and N-isopropyl-2-quinolinemethanamine yielded calixarenes such as I (R = EtOCH2CH2; R1 = Me2CH, PhCH2). Calixarenes such as I were designed as potential analogs of multinuclear metalloenzymes. The crystal structure of I (R = EtOCH2CH2; R1 = PhCH2) was determined by X-ray crystallog.

IT **155057-44-6P**
(preparation of tri- and tetra-substituted calixarene substituted with bidentate amine moieties as potential mimics of multinuclear metalloenzymes)

RN 155057-44-6 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,

5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrakis(2-ethoxyethoxy)-
(CA INDEX NAME)

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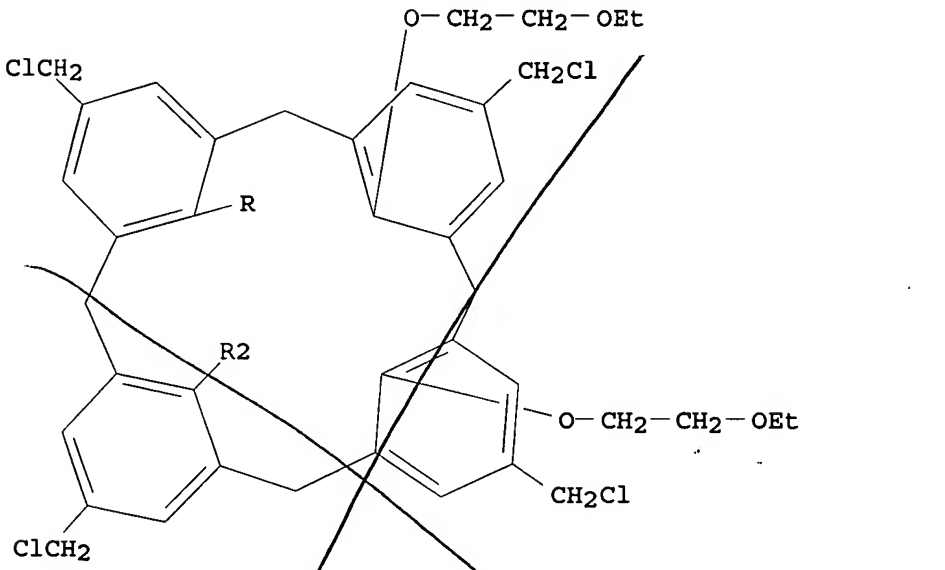

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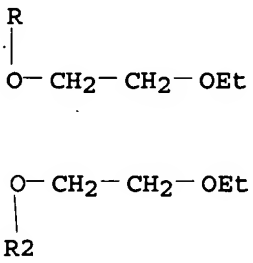
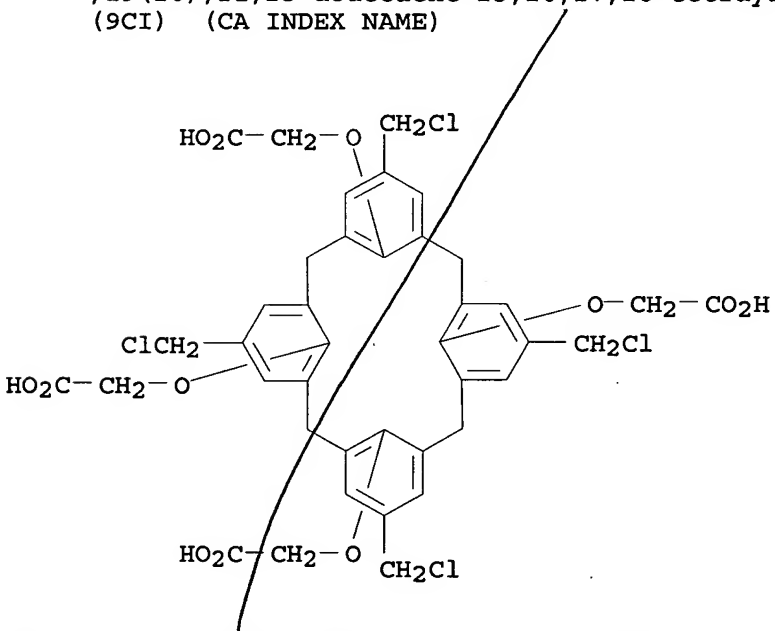


CC 25-29 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
Section cross-reference(s): 75
IT 18081-89-5P 58669-30-0P 105487-97-6P 154459-66-2P
155057-44-6P 166940-40-5P 426836-40-0P 426836-41-1P
426836-42-2P
(preparation of tri- and tetra-substituted calixarene substituted with bidentate amine moieties as potential mimics of multinuclear metalloenzymes)
REFERENCE COUNT: 51 THERE ARE 51 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 26 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2001:545245 HCAPLUS
DOCUMENT NUMBER: 135:278577
TITLE: Selective adsorption of lead ion on calix[4]arene carboxylate resin supported by polyallylamine

AUTHOR(S): Ohto, Keisuke; Tanaka, Yuki; Yano, Masayuki; Shinohara, Takaaki; Murakami, Emi; Inoue, Katsutoshi
CORPORATE SOURCE: Department of Applied Chemistry, Faculty of Science and Engineering, Saga University, Saga, 840-8502, Japan
SOURCE: Solvent Extraction and Ion Exchange (2001), 19(4), 725-741
CODEN: SEIEDB; ISSN: 0736-6299
PUBLISHER: Marcel Dekker, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 27 Jul 2001
AB A calix[4]arene carboxylate resin was prepared by treatment of polyallylamine matrixes with chloromethylcalix[4]arene carboxylate. Investigate the resin's adsorption behavior was examined in respect of metal ion adsorption on the resin was studied. The selectivity sequence among the base metal ions on the resin is as follows: Pb >> Cu >> Zn .apprx. Ni .apprx. Co. The origin of the selectivity sequence is attributed not to amino groups of the polymer matrixes but to the functional groups of calix[4]arene carboxylate introduced. Although maximum loading capacity for lead ion on the resin was not very high, it shows high lead selectivity and the separation of trace amount of lead from large excess of zinc was completely achieved.
IT **194237-31-5DP**, reaction product with polyallylamine matrix
(transition metal ion adsorption on polyallylamine matrixes treated with chloromethylcalix[4]arene carboxylate)
RN 194237-31-5 HCAPLUS
CN Acetic acid, 2,2',2'',2'''-[[5,11,17,23-tetrakis(chloromethyl)pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-tetrayl]tetrakis(oxy)]tetrakis- (9CI) (CA INDEX NAME)



CC 66-4 (Surface Chemistry and Colloids)
Section cross-reference(s): 68
IT 30551-89-4DP, Polyallylamine, reaction product with chloromethylcalix[4]arene carboxylate **194237-31-5DP**, reaction product with polyallylamine matrix
(transition metal ion adsorption on polyallylamine matrixes treated with chloromethylcalix[4]arene carboxylate)

REFERENCE COUNT: 50 THERE ARE 50 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 27 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2001:107268 HCAPLUS
DOCUMENT NUMBER: 134:296186
TITLE: Synthesis and characterization of sulfonated and poly(ethylene glycol)-calix[4]arene tertiary phosphines
AUTHOR(S): Shen, Jinyu; Roundhill, D. Max
CORPORATE SOURCE: Department of Chemistry and Biochemistry, Texas Tech University, Lubbock, TX, 79409-1061, USA
SOURCE: Phosphorus, Sulfur and Silicon and the Related Elements (2000), 165, 33-42
CODEN: PSSLEC; ISSN: 1042-6507
PUBLISHER: Gordon & Breach Science Publishers
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 13 Feb 2001
AB Sulfonation of triphenylphosphine with a 30% oleum solution gave phenyl-di-(3-sulfonatophenyl)phosphine. The structure was confirmed by a combination of 1H and 13C NMR spectroscopy. A pair of calix[4]arenes with a tertiary phosphine group on one rim and a methoxy ethylene glycol group on the other were prepared and characterized. One had the phosphine moiety on the narrow rim, and the other had the phosphine on the wide rim. Structural characterization was again by a combination of 1H and 13C NMR spectroscopy.
IT **334678-84-1P**
(preparation and phosphination of)
RN 334678-84-1 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α,α',α'',α'''-[5,11,17,23-tetrakis(chloromethyl)pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-tetrayl]tetrakis[ω-methoxy- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **334678-81-8P**
(preparation and reaction with polyethylene glycol)
RN 334678-81-8 HCAPLUS
CN Ethanol, 2,2',2'',2'''-[[5,11,17,23-tetrakis(chloromethyl)pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-tetrayl]tetrakis(oxy)]tetrakis-, tetrakis(4-methylbenzenesulfonate) (9CI) (CA INDEX NAME)

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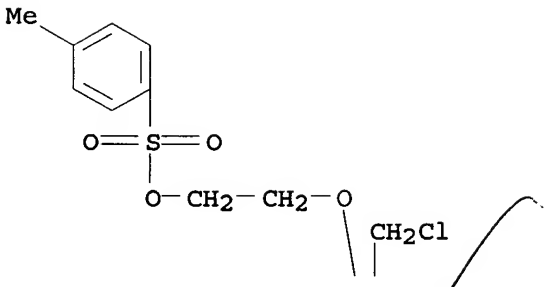

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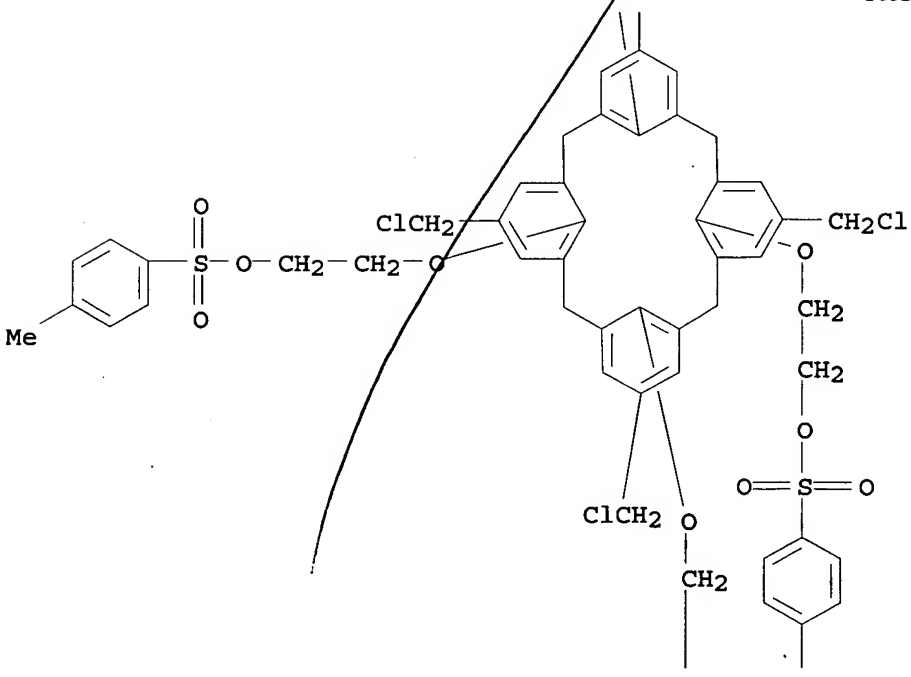

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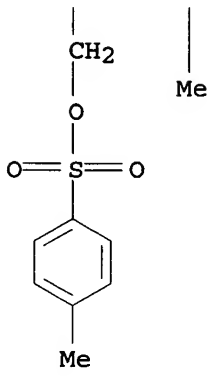
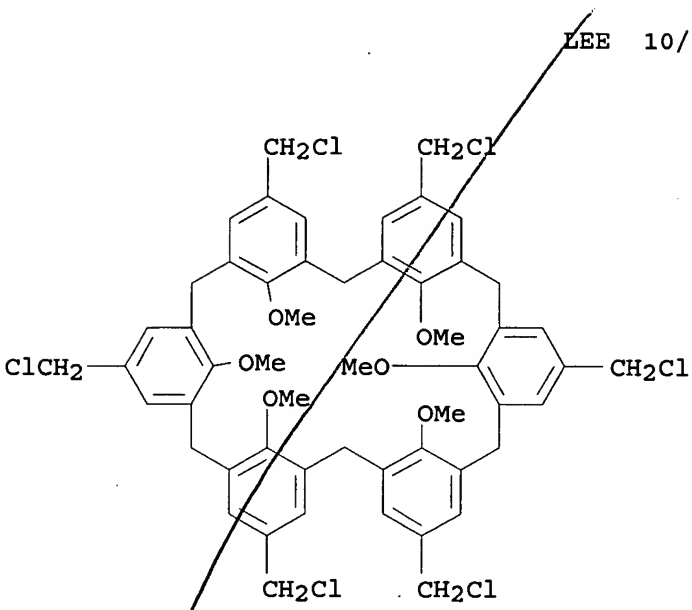


CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 29
IT 334678-82-9P **334678-84-1P**
(preparation and phosphination of)
IT **334678-81-8P**
(preparation and reaction with polyethylene glycol)
REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

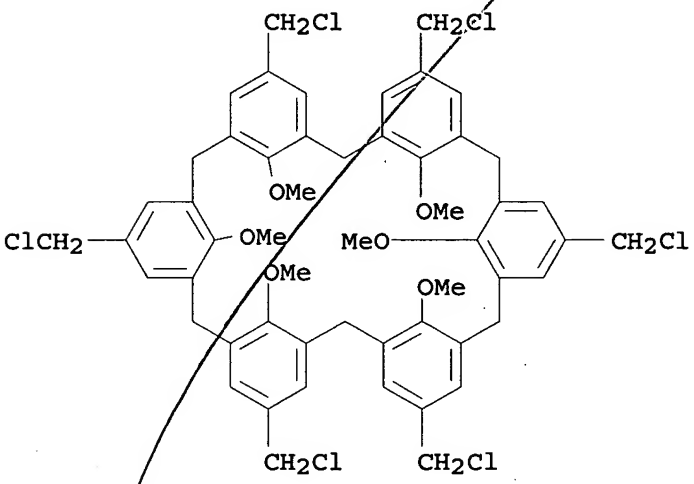
L24 ANSWER 28 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2000:4116 HCAPLUS
DOCUMENT NUMBER: 132:144332
TITLE: Nanometer electron beam lithography
AUTHOR(S): Ochiai, Yukinori; Manako, Shoko; Fujita, Jun-Ichi; Nomura, Eiichi
CORPORATE SOURCE: Fundamental Research Laboratories, NEC corp., Japan
SOURCE: NEC Research & Development (1999), 40(4), 388-392
CODEN: NECRAU; ISSN: 0547-051X
PUBLISHER: NEC Creative, Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 04 Jan 2000
AB High-resolution electron beam (EB) lithog. is demonstrated using a high-resolution resist, calixarene and polystyrene resist. The authors fabricated fine dots, and line-and-space patterns with a feature size of about 10 nm. The smallest-ever line pattern with a width of 7 nm has been successfully delineated by using poly(α-methylstyrene) resist with a mol. weight of 650. The authors found that the resolution of resist is determined by the mol. weight, i.e., the mol. size of resist resin.
IT **124006-38-8**
(nanometer electron-beam lithog. using high-resolution calixarene and polystyrene resist)
RN 124006-38-8 HCAPLUS
CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
IT 9003-53-6, Polystyrene 25014-31-7, Poly(α-methylstyrene)
124006-38-8 141137-71-5
(nanometer electron-beam lithog. using high-resolution calixarene and polystyrene resist)
REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 29 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1999:351093 HCAPLUS
DOCUMENT NUMBER: 131:136694
TITLE: High-resolution organic resists for charged-particle lithography
AUTHOR(S): Ochiai, Yukinori; Manako, Shoko; Fujita, Jun-ichi; Nomura, Eiichi
CORPORATE SOURCE: Fundamental Research Laboratories, NEC Corporation, Tsukuba, 305, Japan
SOURCE: Journal of Vacuum Science & Technology, B: Microelectronics and Nanometer Structures (1999), 17(3), 933-938
CODEN: JVTBD9; ISSN: 0734-211X
PUBLISHER: American Institute of Physics
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 08 Jun 1999
AB Exposure of resists with electron or ion beams is a common nanolithog. technol. which is used to fabricate electronic devices and microstructures. The resolution mainly depends on the beam size and the resolution of the resists. We have developed two new high-resolution organic resists, which are calixarene derivs. 50 KeV electron beams and 260 keV Be2+ ion beams were used to expose the resists, and 10 nm resolution was achieved with the Gaussian electron beam. The electron beam sensitivities of the two resists were 7 and 0.7 mC/cm2, resp. By using them, we produced 10-nm-order resolution patterns, which we exposed with a Gaussian electron beam. We also achieved 10-nm-level resolution by using a low-mol.-weight (Mw = 1100) polystyrene resist, almost the same Mw as that of the calixarene. The resolution of the polystyrene resist improved as its mol. weight was lowered. Therefore, the resist

resolution depends on the mol. weight or mol. size.
IT **124006-38-8**
(high-resolution charged-particle resists from)
RN 124006-38-8 HCAPLUS
CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
IT 9003-53-6, Polystyrene **124006-38-8** 141137-71-5
(high-resolution charged-particle resists from)
REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 30 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1999:182422 HCAPLUS
DOCUMENT NUMBER: 130:255207
TITLE: Separation of lead ion from aqueous solutions and manufacture of the separating agents
INVENTOR(S): Inoue, Katsutoshi; Oto, Keisuke
PATENT ASSIGNEE(S): Tanaka Noble Metal Industrial Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11070383	A	19990316	JP 1997-233682	19970829
PRIORITY APPLN. INFO.:			JP 1997-233682	19970829

OTHER SOURCE(S): MARPAT 130:255207
ED Entered STN: 19 Mar 1999
GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

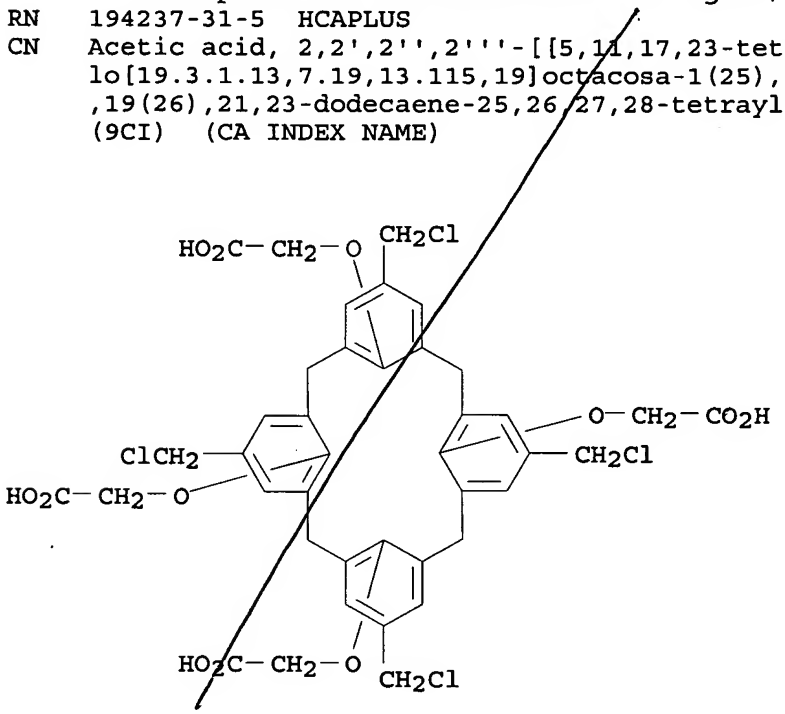
AB Pb2+ is separated by solvent extraction with calixarene compds. I (R = C4-16 alkyl). Also claimed is separation of Pb2+ by adsorption with calixarene compds. fixed on polyallylamine (II) as adsorbents. The title agents are manufactured by heat stirring I or II with paraformaldehyde, HCl, Ac2O, H3PO4, and dioxane, heat refluxing with water, iso-Pr alc., polyallyamine acetate, Na2NO2, and CaCO3, and then precipitating with aqueous HCl.

The agents are useful for separation of Pb ion from aqueous solns.

IT **194237-31-5DP**, reaction products with polyallylamine
(separation of Pb from aqueous solution by calixarene carboxylate-containing solvent extraction or calixarene carboxylate-fix on polyallyamine adsorption and manufacture of the agent)

RN 194237-31-5 HCAPLUS

CN Acetic acid, 2,2',2'',2'''-[[5,11,17,23-tetrakis(chloromethyl)pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-tetrayl]tetrakis(oxy)]tetrakis- (9CI) (CA INDEX NAME)



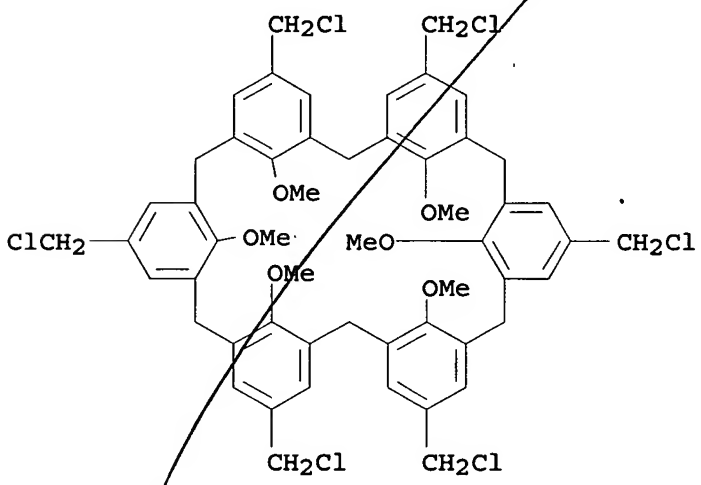
IC ICM C02F001-28
ICS B01D011-04; B01J020-26; C02F001-26; C02F001-62; C09K003-00

CC 54-2 (Extractive Metallurgy)

IT 30551-89-4DP, Allylamine homopolymer, reaction products with chloromethylcalixarene **194237-31-5DP**, reaction products with polyallylamine
(separation of Pb from aqueous solution by calixarene carboxylate-containing solvent extraction or calixarene carboxylate-fix on polyallyamine adsorption and manufacture of the agent)

L24 ANSWER 31 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1998:592927 HCAPLUS
DOCUMENT NUMBER: 129:237591
TITLE: Calixarene resists for nano-lithography
AUTHOR(S): Ohnishi, Yoshitake; Wamme, Naoko; Fujita, Jun-Ichi
CORPORATE SOURCE: Fundamental Research Laboratories, NEC Corporation, Tsukuba, 305, Japan

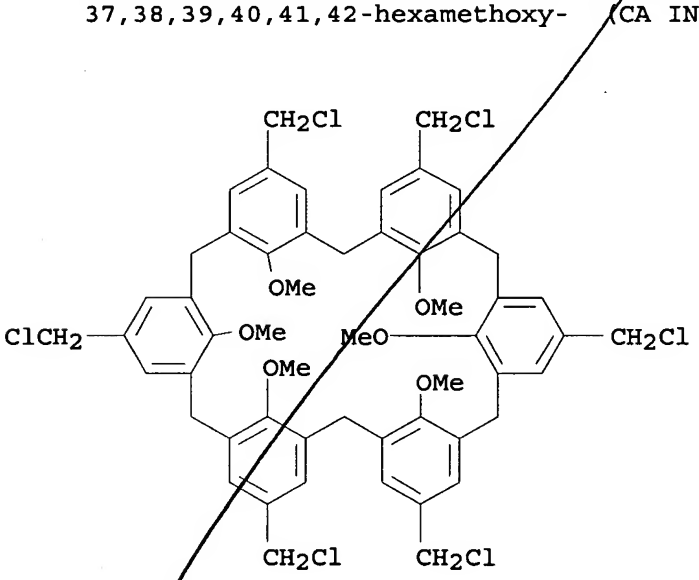
SOURCE: ACS Symposium Series (1998), 706(Micro- and Nanopatterning Polymers), 249-261
CODEN: ACSMC8; ISSN: 0097-6156
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 18 Sep 1998
AB Calixarenes were developed as neg. electron resists for nano-lithog. These cluster-like, or roughly ball-shaped mols. form very flat and hard films by spin-coating. The high resolution of these resists down to several nm is because these mols. are quite small and free as is in ordinary chain polymers. As etching resistance of calixarenes is sufficient in plasma-etch processes, nano-fabrication of metal or semiconductors is easily carried out by conventional resist processes.
IT **124006-38-8**
(calixarene resists for nanolithog.)
RN 124006-38-8 HCAPLUS
CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
IT **124006-38-8** 141137-71-5
(calixarene resists for nanolithog.)
REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 32 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1998:215364 HCAPLUS
DOCUMENT NUMBER: 128:288230
TITLE: Resolution of calixarene resist under low energy electron irradiation
AUTHOR(S): Fujita, J.; Ohnishi, Y.; Manako, S.; Ochiai, Y.; Nomura, E.; Matsui, S.
CORPORATE SOURCE: Fundamental Research Laboratories, NEC Corporation, Tsukuba, 305, Japan
SOURCE: Microelectronic Engineering (1998), 41/42, 323-326

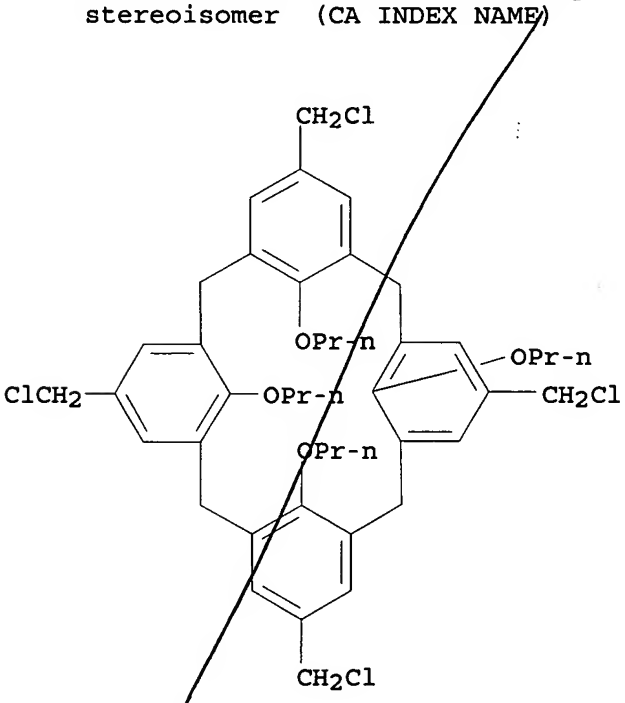
CODEN: MIENEF; ISSN: 0167-9317
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 17 Apr 1998
AB The resolution and sensitivity of calixarene resists in relation to incident electron energy were studied. While the sensitivity of the resists was varied in compliance with Bethe theory for the changes of the electron energy, resolution of the resists in terms of the min. dot size, shows almost the same value of about 10 nm for each electron energy. A Monte Carlo simulation suggests the electron dose at the edge of the dot pattern was only one hundredth of that at the center of the electron beam. This means the major factor in limiting the resolution in calixarene resists was not the electron beam profile, but other factors such as a limit due to development processes.
IT **124006-38-8**, 5,11,17,23,19,35-Hexachloromethyl-37,38,39,40,41,42-hexamethoxycalix-[6]arene
(resolution of calixarene resist under low energy electron irradiation)
RN 124006-38-8 HCAPLUS
CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
IT **124006-38-8**, 5,11,17,23,19,35-Hexachloromethyl-37,38,39,40,41,42-hexamethoxycalix-[6]arene 141137-71-5, 5,11,17,23,29,35-Hexamethyl-37,38,39,40,41,42-hexaacetoxycalix-[6]arene
(resolution of calixarene resist under low energy electron irradiation)
REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 33 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1998:105652 HCAPLUS
DOCUMENT NUMBER: 128:192633
TITLE: Synthesis of multiply-connected 1,3-alternate-calix[4]arenes. A novel approach to

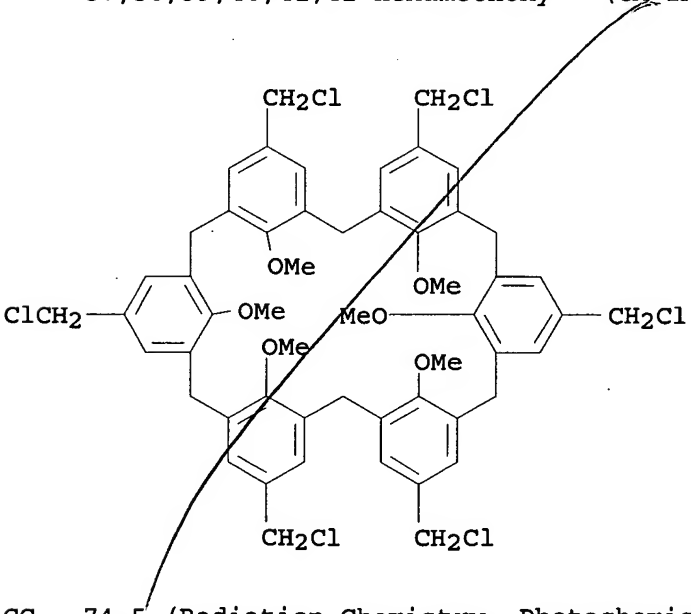
synthetic "nano-tubes"
AUTHOR(S): Ikeda, Atsushi; Kawaguchi, Masaru; Shinkai, Seiji
CORPORATE SOURCE: Department of Chemical Science & Technology, Faculty of Engineering, Kyushu University, Fukuoka, 812, Japan
SOURCE: Anales de Quimica International Edition (1997), 93(6), 408-414
CODEN: AQIEFZ
PUBLISHER: Springer-Verlag Iberica
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 21 Feb 1998
AB Certain metal cations can oscillate between two metal-binding sites in a 1,3-alternate-calix[4]arene through its π-basic cavity. Hence, it is expected that one-dimensional multiple connection of 1,3-alternate-calix[4]arenes provides novel synthetic "nano-tubes" for metal cation tunneling. A synthetic approach to five multiply-connected 1,3-alternate-calix[4]arenes is reported.
IT **153651-86-6**
(synthesis of multiply-connected calix[4]arene nano-tubes)
RN 153651-86-6 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy-, stereoisomer (CA INDEX NAME)



CC 28-23 (Heterocyclic Compounds (More Than One Hetero Atom))
IT 64820-21-9 148528-21-6 **153651-86-6** 162301-48-6 176098-88-7 177412-46-3
(synthesis of multiply-connected calix[4]arene nano-tubes)
REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 34 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1998:66945 HCAPLUS

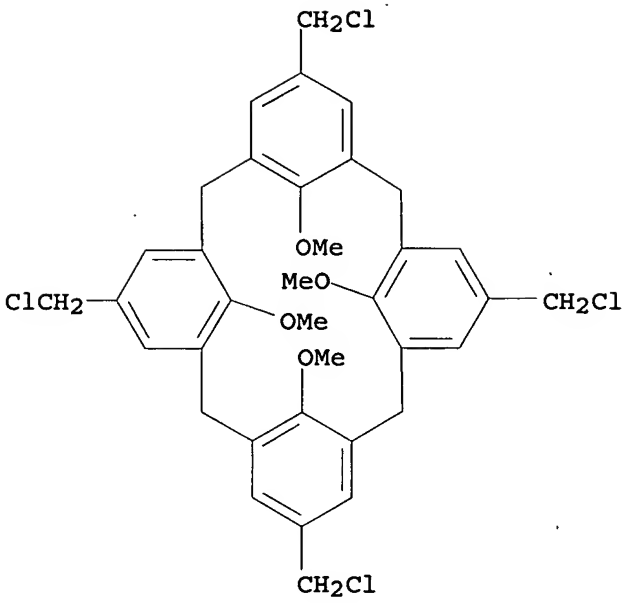
DOCUMENT NUMBER: 128:147408
TITLE: Calixarene electron beam resist for nano-lithography
AUTHOR(S): Fujita, Jun-ichi; Ohnishi, Yoshitake; Manako, Shoko; Ochiai, Yukinori; Nomura, Eiichi; Sakamoto, Toshitsugu; Matsui, Shiniji
CORPORATE SOURCE: Fundamental Res. Lab., NEC Corp., Tsukuba, 305, Japan
SOURCE: Japanese Journal of Applied Physics, Part 1: Regular Papers, Short Notes & Review Papers (1997), 36(12B), 7769-7772
CODEN: JAPNDE; ISSN: 0021-4922
PUBLISHER: Japanese Journal of Applied Physics
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 05 Feb 1998
AB New electron beam (EB) resists made of calixarene resists are introduced. Typical sensitivities of calixarene resists range from 700 μ/C/cm2 to 7 mC/cm2. High-d. dot arrays with 15 nm diameter constructed using calixarene resist were easily delineated using a point EB lithog. system. Our results suggest that the resolution limit of calixarene resists is dominated by a development process such as adhesion to a substrate rather than by the EB profile. Calixarene resists are resistant to etching by halide plasma. We also demonstrated nanoscale devices processed by using calixarene resists. Calixarene resists are promising materials for nanofabrication.
IT **124006-38-8**
(electron beam resist for nano-lithog.)
RN 124006-38-8 HCAPLUS
CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
IT **124006-38-8** 141137-71-5
(electron beam resist for nano-lithog.)
REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE

RE FORMAT

L24 ANSWER 35 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1998:52001 HCAPLUS
DOCUMENT NUMBER: 128:80448
TITLE: (Methylthio)methyl and (N,N-Dimethylcarbamoyl)methyl Upper-Rim-Substituted Calix[4]arenes as Potential Extractants for Ag(I), Hg(II), Ni(II), Pd(II), Pt(II), and Au(III)
AUTHOR(S): Yordanov, Alexander T.; Falana, Olusegun M.; Koch, H. Fred; Roundhill, D. Max
CORPORATE SOURCE: Department of Chemistry and Biochemistry, Texas Tech University, Lubbock, TX, 79409-1061, USA
SOURCE: Inorganic Chemistry (1997), 36(27), 6468-6471
CODEN: INOCAJ; ISSN: 0020-1669
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 29 Jan 1998
AB The upper rim substituted calix[4]arenes 5,11,17,23-methanethiomethyl calix[4]arene, 5,11,17,23-methanethiomethyl-25,26,27,28-methoxy calix[4]arene, 5,11,17,23 N,N-dimethyldithiocarbamoylmethyl calix[4]arene and 5,11,17,23-N,N-dimethyldithiocarbamoylmethyl-25,26,27,28-methoxy calix[4]arene have been synthesized. The compds., along with 25,26,27,28-methoxycalix[4]arene, have been used as extractants for Ag(I), Hg(II), Ni(II), Pd(II), Pt(II) and Au(III) from aqueous solution into chloroform. The compds. appended with sulfur groups extract Au(III) and Pd(II), but do not extract Ni(II) and Pt(II). Both 5,11,17,23-methanethiomethyl-25,26,27,28-methoxy calix[4]arene and 5,11,17,23-N,N-dimethyldithiocarbamoylmethyl-25,26,27,28-methoxy calix[4]arene extract Hg(II).
IT **200512-83-0**
(in preparation of (methylthio)methyl and (dimethylcarbamoyl)methyl upper-rim-substituted calix[4]arenes)
RN 200512-83-0 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetramethoxy-, stereoisomer (CA INDEX NAME)



CC 68-2 (Phase Equilibriums, Chemical Equilibriums, and Solutions)
Section cross-reference(s): 25
IT 124-41-4, Sodium methoxide 128-04-1, Sodium N,N-dimethyldithiocarbamate 140146-43-6 **200512-83-0**
(in preparation of (methylthio)methyl and (dimethylcarbamoyl)methyl upper-rim-substituted calix[4]arenes)
REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 36 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1997:610019 HCAPLUS
DOCUMENT NUMBER: 127:285942
TITLE: Super-fine pattern formation and super-fine etching method using resist containing calixarene
INVENTOR(S): Onishi, Yoshitake; Fujita, Junichi; Aldoeni, Arturo; Casnati, Alessandro; Pochini, Andrea; Ungaro, Rocco
PATENT ASSIGNEE(S): NEC Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09236919	A	19970909	JP 1996-157287	19960618
JP 2792508	B2	19980903		
US 5702620	A	19971230	US 1996-693672	19960813
PRIORITY APPLN. INFO.:			IT 1996-MI382 A	19960228

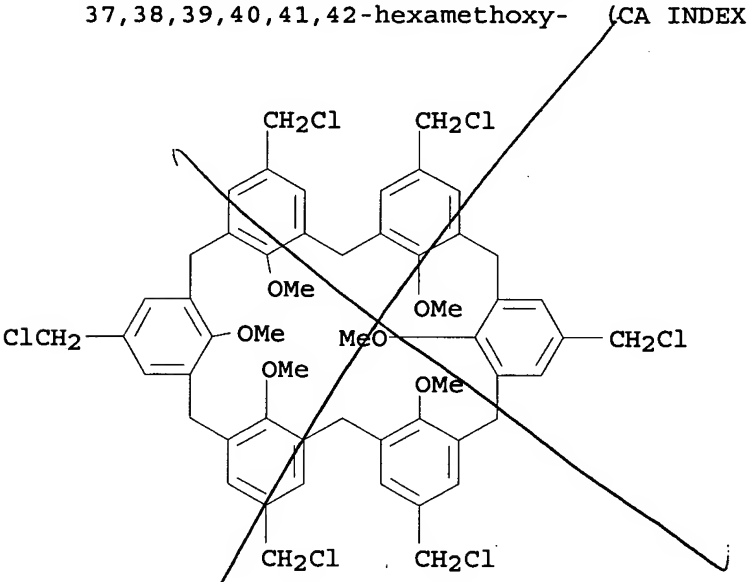
ED Entered STN: 24 Sep 1997
AB The title patterning method comprises the steps of forming a resist film made of 5,11,17,23,29,35-hexachloromethyl-37,38,39,40,41,42-

hexamethoxycalix[6]arene (I) which is soluble in solvents and sensitive toward high energy rays, exposing the film selectively with the rays, and removing the unexposed area with the solvents to develop the exposed area. The title etching method comprises forming a pattern on a substrate by the above process and dry-etching the substrate along with the pattern. Super-fine resist patterns of the order of nano-meters are obtained. Thus, a solution of I in dichlorobenzene was coated on a Si wafer, pre-baked, patternwise exposed with an electron beam, and developed with xylene to form a pattern.

IT **124006-38-8P**
(super-fine pattern formation using resist containing calixarene)

RN 124006-38-8 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



IC ICM G03F007-038
ICS C09D165-00; C23F001-00; H01L021-027; H01L021-302

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT **124006-38-8P**
(super-fine pattern formation using resist containing calixarene)

L24 ANSWER 37 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1997:582363 HCAPLUS
DOCUMENT NUMBER: 127:270391
TITLE: Calixarene resists for nano-lithography
AUTHOR(S): Ohnishi, Yoshitake; Wamme, Naoko; Fujita, Jun-Ichi
CORPORATE SOURCE: Setagaya, 155, Japan
SOURCE: Polymeric Materials Science and Engineering (1997), 77, 453-454
CODEN: PMSEDG; ISSN: 0743-0515
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

ED Entered STN: 12 Sep 1997

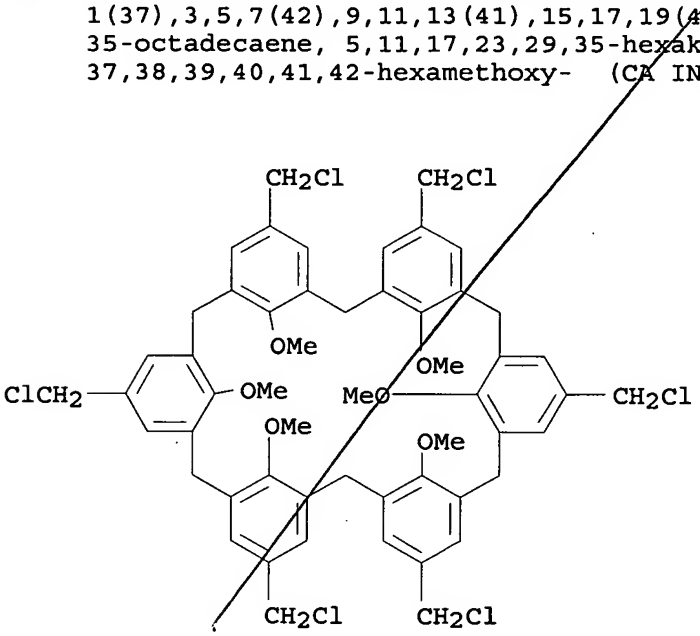
AB Calixarenes are the cyclic oligomers produced by condensation of phenols and formaldehyde. In other words, they are cyclic phenol resins, but their phys. and chemical properties are much different from

those of linear phenol resins. Calixarenes have generally poor solubilities either to water or organic solvents; many of them are crystalline Their m.ps. are generally high, while ordinary phenol resins, novolaks, soften below 150°C. We previously developed and reported 5,11,17,23,29,35-hexamethyl-37,38,39,40,41,42-hexaacetoxycalix[6]arene (MC6AOAc). This compound is soluble to organic solvents and has high heat resistivity up to 320°C. This mol. is, roughly speaking, a round mol. having a diameter around 1 nm. Although there is no entanglement as is in linear polymers, we verified making calixarene films in semiconductor devices. As an electron resist, MC6AOAc shows ultra high resolution and enables us to fabricate nanostructures with conventional resist processes.

IT **124006-38-8**
(nano-patterning and nano-fabrications using calixarenes as electron-beam resists)

RN 124006-38-8 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



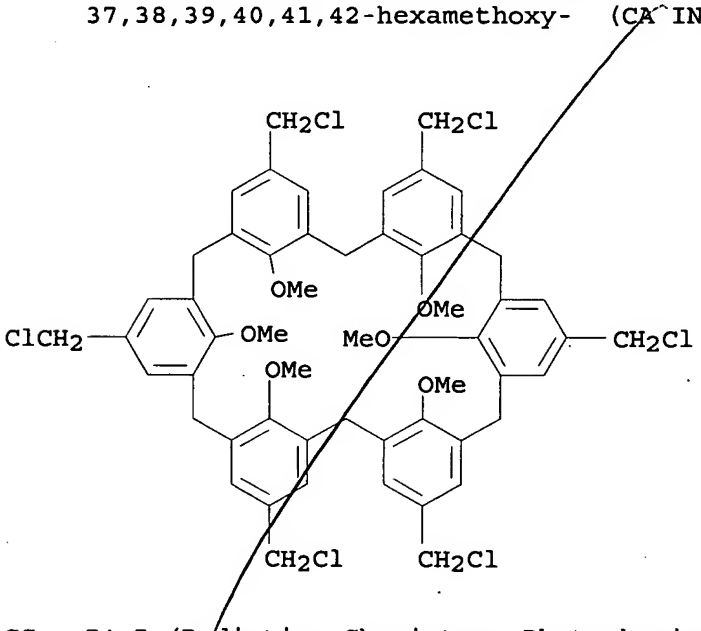
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76

IT **124006-38-8** 141137-71-5, 5,11,17,23,29,35-Hexamethyl-37,38,39,40,41,42-hexaacetoxycalix[6]arene
(nano-patterning and nano-fabrications using calixarenes as electron-beam resists)

L24 ANSWER 38 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1997:471387 HCAPLUS
DOCUMENT NUMBER: 127:227284
TITLE: High resolution EB lithography on organic resists: molecular size effect
AUTHOR(S): Ochiai, Yukinori; Manako, Shoko; Fujita, Jun-Ichi; Nomura, Eiichi
CORPORATE SOURCE: Fundamental Research Laboratories, NEC Corporation, Tsukuba, 305, Japan
SOURCE: Journal of Photopolymer Science and Technology (1997), 10(4), 641-646

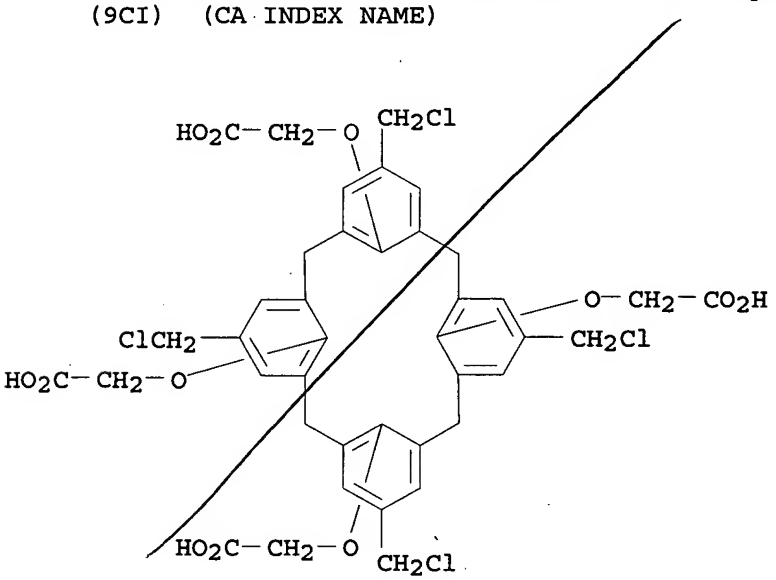
CODEN: JSTEEW; ISSN: 0914-9244
PUBLISHER: Technical Association of Photopolymers, Japan
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 26 Jul 1997
AB The resolution of organic resists has been investigated as a function of base resin structure and mol. weight Calixarene, which has a ring structure, and polystyrene, which has a chain structure, were used for the investigation. The authors show that a high-resolution lithog. can be achieved using an organic resist with a low mol. weight, i.e., a smaller mol. size. A 10 nm level neg. resist pattern is demonstrated.
IT **124006-38-8**
(resolution of organic electron-beam resists as function of base resin structure and mol. weight)
RN 124006-38-8 HCAPLUS
CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
IT 9003-53-6, Polystyrene **124006-38-8** 141137-71-5
(resolution of organic electron-beam resists as function of base resin structure and mol. weight)

L24 ANSWER 39 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1997:461820 HCAPLUS
DOCUMENT NUMBER: 127:199295
TITLE: Adsorptive separation of lead and zinc ions by novel type of calix[4]arene carboxylate resin immobilized with polyallylamine
AUTHOR(S): Ohto, Keisuke; Tanaka, Yuki; Inoue, Katsutoshi
CORPORATE SOURCE: Dep. Appl. Chem., Fac. Sci. Eng., Saga Univ., Honjo, 840, Japan
SOURCE: Chemistry Letters (1997), (7), 647-648
CODEN: CMLTAG; ISSN: 0366-7022
PUBLISHER: Chemical Society of Japan
DOCUMENT TYPE: Journal
LANGUAGE: English

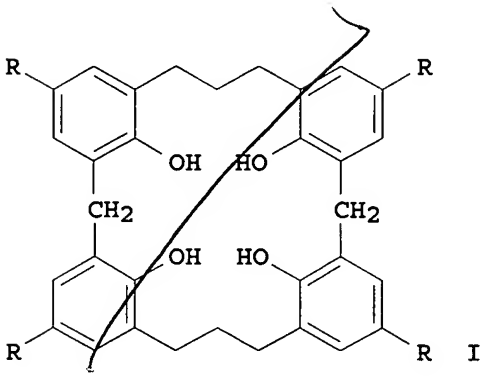
ED Entered STN: 24 Jul 1997
AB Novel type of calix[4]arene carboxylate resin immobilized with polyallylamine was prepared to study the absorption behavior for lead and zinc ions. The resin possesses significantly higher separation efficiency for lead away from zinc. In the separation by column chromatog., it was confirmed to highly selectively adsorb trace amount of lead ion over large excess amount of zinc ion.
IT **194237-31-5DP**, reaction product with polyallylamine
(adsorptive separation of lead and zinc ions using of calix[4]arene carboxylate resin immobilized with polyallylamine)
RN 194237-31-5 HCAPLUS
CN Acetic acid, 2,2',2'',2'''-[[5,11,17,23-tetrakis(chloromethyl)pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-tetrayl]tetrakis(oxy)]tetrakis- (9CI) (CA INDEX NAME)



CC 79-4 (Inorganic Analytical Chemistry)
Section cross-reference(s): 37, 66
IT 41232-35-3DP, reaction product with calix[4]arene carboxylate derivative
194237-31-5DP, reaction product with polyallylamine
(adsorptive separation of lead and zinc ions using of calix[4]arene carboxylate resin immobilized with polyallylamine)
REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 40 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1997:432806 HCAPLUS
DOCUMENT NUMBER: 127:148989
TITLE: Synthesis and conformational studies of tetrahydroxy[3.1.3.1]metacyclophanes and electrophilic aromatic substitution of their tetramethoxy derivatives
AUTHOR(S): Yamato, Takehiko; Saruwatari, Yoshiyuki; Yasumatsu, Masashi
CORPORATE SOURCE: Department of Applied Chemistry, Faculty of Science and Engineering, Saga University, Saga, 840, Japan
SOURCE: Journal of the Chemical Society, Perkin Transactions 1: Organic and Bio-Organic Chemistry

(1997), (11), 1725-1730
CODEN: JCPRB4; ISSN: 0300-922X
PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 127:148989
ED Entered STN: 11 Jul 1997
GI



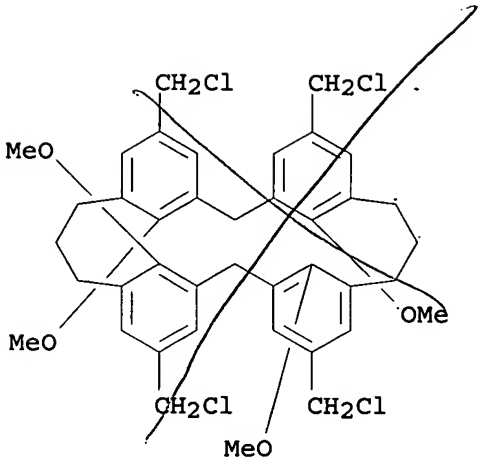
I

AB Base-catalyzed condensation of 1,3-bis(5-tert-butyl-2-hydroxyphenyl)propane with formaldehyde in xylene was carried out to form the novel propane-bridged calixarene-type macrocyclic compound, tetrahydroxy[3.1.3.1]metacyclophane I (R = Bu-t). The optimum yield (90%) of the latter was obtained with NaOH as the base, the use of other alkali-metal hydroxides giving lower yields. AlCl3-MeNO2-catalyzed trans-tert-butylation of I (R = Bu-t) in benzene affords I (R = H) in 80% yield. Intramol. hydrogen bonding was observed in the tetrols I (R = Bu-t, H) and found to be comparable to calix[4]arene. Methylation of I (R = H) with MeI affords the tetra-Me ether. The stability of multi-membered carbon skeletons permits the interconversion of functional groups at the lower and upper rims without special regard to ring-opening side-reactions on the upper rim. The 1H NMR spectral behavior of these macrocyclic metacyclophanes is also discussed.

IT **193225-03-5P**
(preparation of)

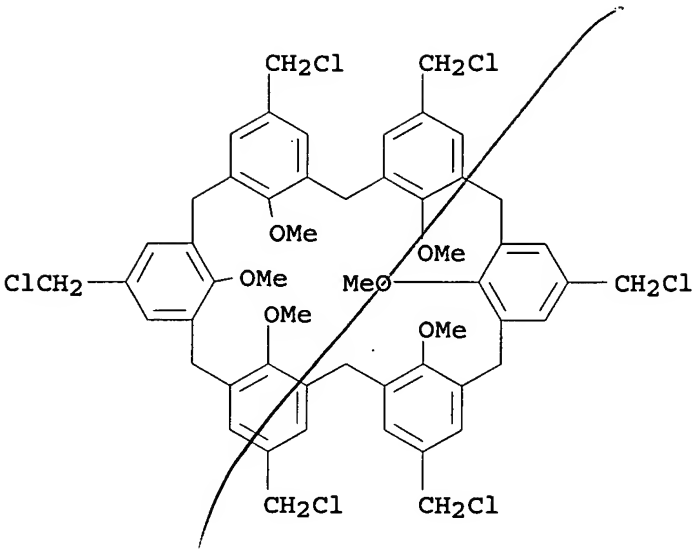
RN 193225-03-5 HCAPLUS

CN Pentacyclo[23.3.1.13,7.111,15.117,21]dotriaconta-1(29),3,5,7(32),11,13,15(31),17,19,21(30),25,27-dodecaene, 5,13,19,27-tetrakis(chloromethyl)-29,30,31,32-tetramethoxy- (CA INDEX NAME)



CC 25-29 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
IT 193224-99-6P 193225-00-2P 193225-01-3P 193225-02-4P
193225-03-5P 193225-04-6P 193225-05-7P 193281-25-3P
(preparation of)
REFERENCE COUNT: 48 THERE ARE 48 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 41 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1997:110116 HCAPLUS
DOCUMENT NUMBER: 126:256967
TITLE: Calixarenes - prospective materials for nanofabrications
AUTHOR(S): Ohnishi, Y.; Fujita, J.; Ochiai, Y.; Matsui, S.
CORPORATE SOURCE: Fundamental Research Laboratories, NEC Corporation, 34 Miyukigaoka, Tsukuba, 305, Japan
SOURCE: Microelectronic Engineering (1997), 35(1-4, Micro- and Nano-Engineering 96), 117-120
CODEN: MIENEF; ISSN: 0167-9317
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 15 Feb 1997
AB A new group of electron resists, calixarene resists, are presented. These small, cluster-like mols. provide convenient means for making nanostructures. For example, hexaacetate of methylcalix[6]arene easily gives a 10 nm scale pattern in E-beam lithog. with conventional resist processes. Synthesis, identification and characterization of these compds. are described with examples of nanofabrications.
IT **124006-38-8P**
(calixarenes - prospective materials for nanofabrications)
RN 124006-38-8 HCAPLUS
CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



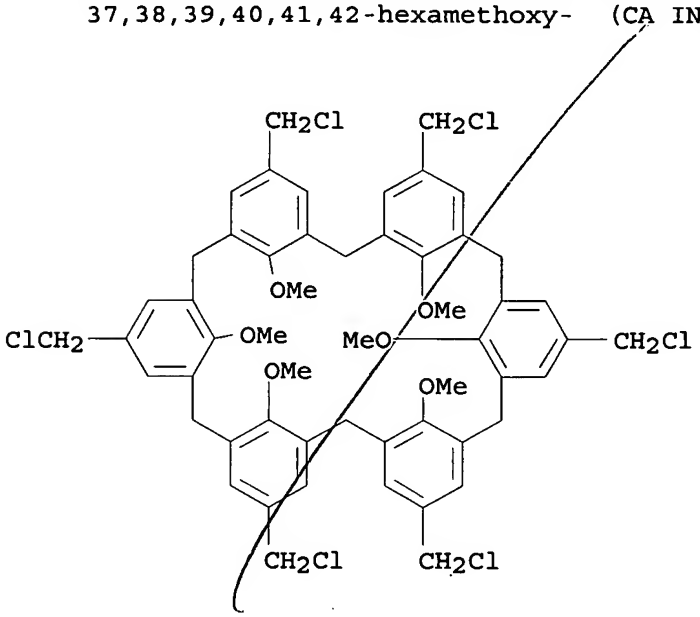
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 25
IT **124006-38-8P**
(calixarenes - prospective materials for nanofabrications)

L24 ANSWER 42 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1997:14038 HCAPLUS
DOCUMENT NUMBER: 126:150389
TITLE: Nanometer-scale resolution of calixarene negative resist in electron beam lithography
AUTHOR(S): Fujita, J.; Ohnishi, Y.; Ochiai, Y.; Nomura, E.; Matsui, S.
CORPORATE SOURCE: Fundamental Research Laboratories, NEC Corporation, Tsukuba, 305, Japan
SOURCE: Journal of Vacuum Science & Technology, B: Microelectronics and Nanometer Structures (1996), 14(6), 4272-4276
CODEN: JVTBD9; ISSN: 0734-211X
PUBLISHER: American Institute of Physics
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 10 Jan 1997
AB New non-polymer materials, calixarene derivs. were tested as high-resolution neg. resists for use in electron beam lithog. Arrays of 12-nm-diameter dots with a 25 nm pitch were fabricated easily. The sensitivity of calixarene in terms of area dose ranged from 700 to 7000 μC/cm2, and the required dose for dot fabrication was about 105 electrons/dot. The standard area dose for calixarene is almost 20 times higher than that for polymethyl methacrylate (PMMA), but the electron spot dose for dot fabrication by calixarene is almost the same as that for PMMA and other highly sensitive resists such as SAL (chemical amplified neg. resist for electron beam made by Shipley). The electron spot dose for such extremely small dots does not seem to depend on standard area dose, but any resist tends to require the same dose under exposure in a 50 keV electron beam writing system. We propose a qual. exposure model that suggests a tradeoff of dose and dot size. The calixarene seems to be promising material for nanofabrication.
IT **124006-38-8**

(non-polymer calixarene derivative as high-resolution neg. resist for electron beam lithog.)

RN 124006-38-8 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT **124006-38-8** 141137-71-5, 5,11,17,23,29,35-Hexamethyl-37,38,39,40,41,42-hexaacetoxycalix[6]arene
(non-polymer calixarene derivative as high-resolution neg. resist for electron beam lithog.)

L24 ANSWER 43 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1996:539389 HCAPLUS

DOCUMENT NUMBER: 125:275836

TITLE: Synthesis and optical resolution of naphthalene-containing inherently chiral calix[4]arenes derived by intramolecular ring closure or stapling of proximal phenyl units

AUTHOR(S): Ikeda, Atsushi; Yoshimura, Makoto; Lhotak, Pavel; Shinkai, Seiji

CORPORATE SOURCE: Dep. Chem. Sci. & Technol., Fac. Eng., Kyushu Univ., Fukuoka, 812, Japan

SOURCE: Journal of the Chemical Society, Perkin Transactions 1: Organic and Bio-Organic Chemistry (1996), (16), 1945-1950
CODEN: JCPRB4; ISSN: 0300-922X

PUBLISHER: Royal Society of Chemistry

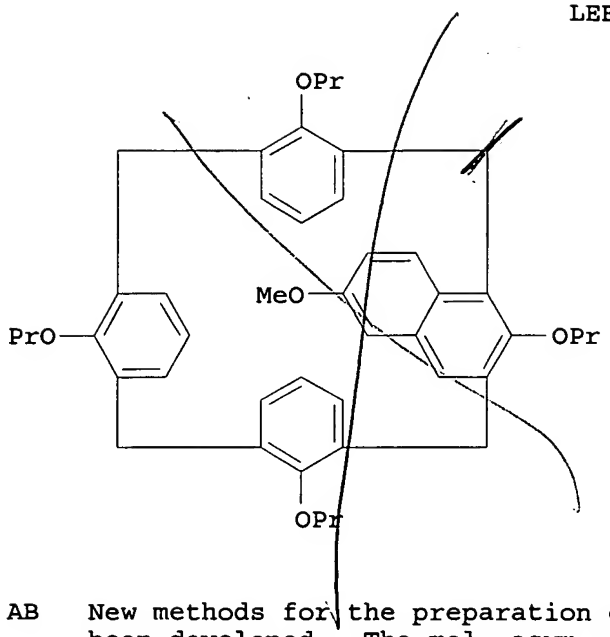
DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 125:275836

ED Entered STN: 10 Sep 1996

GI



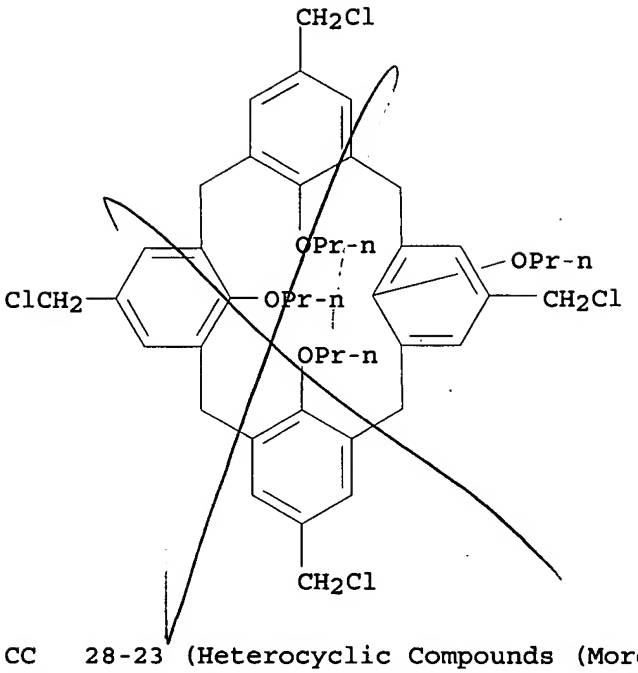
I

AB New methods for the preparation of inherently chiral calix[4]arenes have been developed. The mol. asym. in these calix[4]arenes is created by an asym. disposition of naphthalene rings on the upper rim. In calix[4]arene I, a monoformylcalix[4]arene was transformed into naphthalene-containing calix[4]arene by ring closure. In a naphthalene-containing calix[4]arene, with the naphthalenes forming a heterocyclic ring, p-chloromethyl groups are intramol. cross-linked with 3-hydroxymethyl-2-naphthol. This 'stapling reaction' results in a syn isomer and an anti isomer, the latter being classified into an inherently chiral calix[4]arene. The racemic anti isomer could be 'perfectly' optically resolved by an HPLC method with a chiral-packed column. The chiral products were thoroughly characterized by various spectroscopic methods. These results indicate that the naphthalene skeleton is very useful for creating mol. asym. in calix[4]arenes.

IT **153651-86-6P**
(preparation and optical resolution of naphthalene-containing calixarenes)

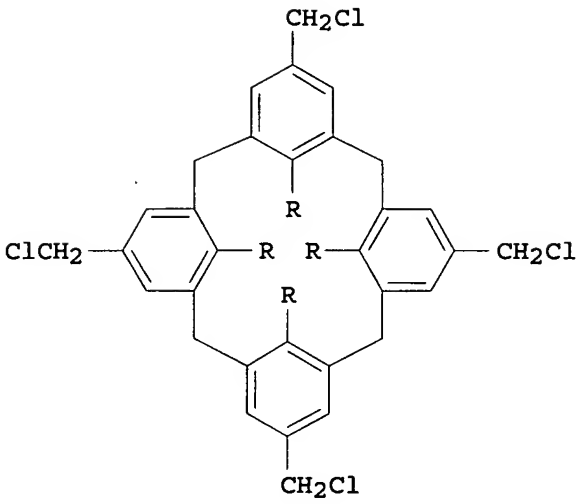
RN 153651-86-6 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy-, stereoisomer (CA INDEX NAME)



CC 28-23 (Heterocyclic Compounds (More Than One Hetero Atom))
IT **153651-86-6P** 154497-05-9P 176098-95-6P 182288-70-6P
182288-88-6P
(preparation and optical resolution of naphthalene-containing calixarenes)

L24 ANSWER 44 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1996:296110 HCAPLUS
DOCUMENT NUMBER: 125:86286
ORIGINAL REFERENCE NO.: 125:16261a,16264a
TITLE: A transannularly bridged bis(calix[4]arene) forming a multiple ansa compound
AUTHOR(S): Siepen, Astrid; Zett, Andreas; Voegtle, Fritz
CORPORATE SOURCE: Institut Organische Chemie und Biochemie, Universitaet Bonn, Bonn, D-53121, Germany
SOURCE: Liebigs Annalen (1996), (5), 757-760
CODEN: LANAEM; ISSN: 0947-3440
PUBLISHER: VCH
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 18 May 1996
GI



I

AB The reaction of the chloromethylated calix[4]arene I [R = OCH2CH2OEt] fixed in the cone conformation with 4,4'-dihydroxybiphenyl leads to a bis(calix[4]arene) macrocycle threaded by two intramol. bridges, which contains three cavities in one multiple ansa mol.

IT **156714-22-6**
(preparation of transannularly bridged bis(calix[4]arene) forming multiple ansa compound)

RN 156714-22-6 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrakis(2-ethoxyethoxy)-, stereoisomer (CA INDEX NAME)

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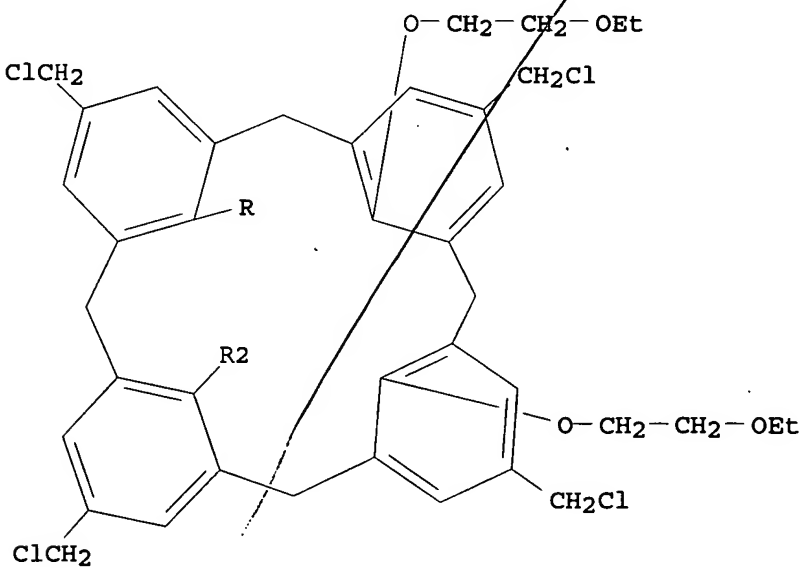

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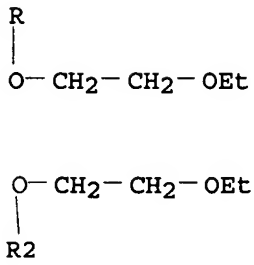
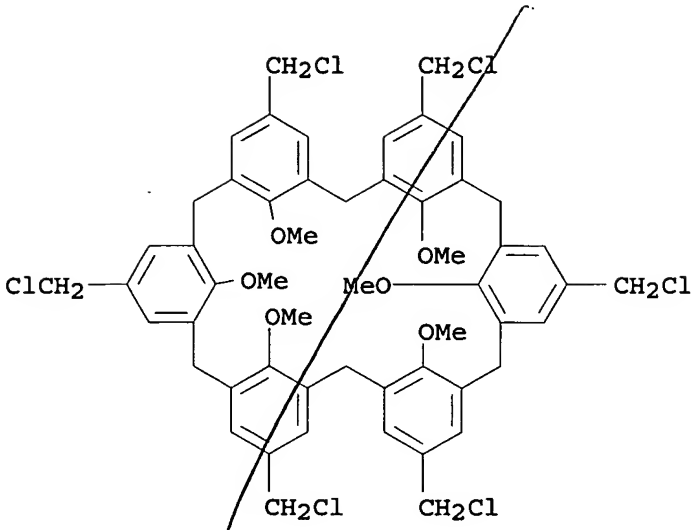
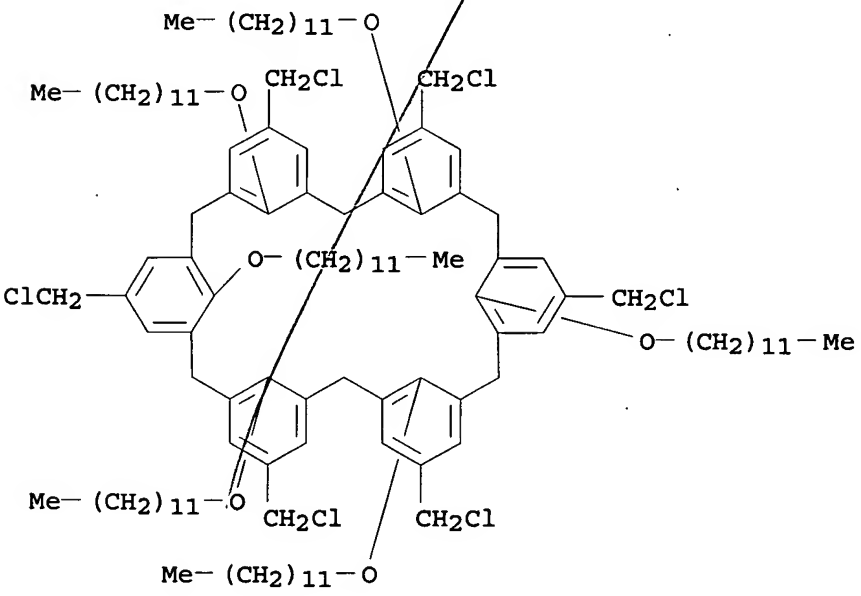


CC 25-29 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
IT 92-88-6, 4,4'-Dihydroxybiphenyl **156714-22-6**
(preparation of transannularly bridged bis(calix[4]arene) forming multiple ansa compound)

L24 ANSWER 45 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1996:35810 HCAPLUS
DOCUMENT NUMBER: 124:202218
ORIGINAL REFERENCE NO.: 124:37385a,37388a
TITLE: Molecular design of calixarene-based host molecules for inclusion of C60 in solution
AUTHOR(S): Araki, Koji; Akao, Kiyotaka; Ikeda, Atsushi; Suzuki, Tsuyoshi; Shinkai, Seiji
CORPORATE SOURCE: Faculty Engineering, Kyushu University, Fukuoka, 812, Japan
SOURCE: Tetrahedron Letters (1996), 37(1), 73-6
CODEN: TELEAY; ISSN: 0040-4039
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 18 Jan 1996
AB Calix[6]arenes bearing N,N-dialkylaniline units or m-phenylenediamine units were synthesized to capture C60 in organic solution: the association consts. (7.9-1.1 + 102 dm3mol-1) were the largest values obtained so far, indicating that calix[6]arene acts as an excellent platform to facilitate the cooperative action of the donor groups.
IT **124006-38-8P 174532-26-4P**
(preparation of calixarenes and absorption spectra and association consts. of inclusion complexes with fullerene)
RN 124006-38-8 HCAPLUS
CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



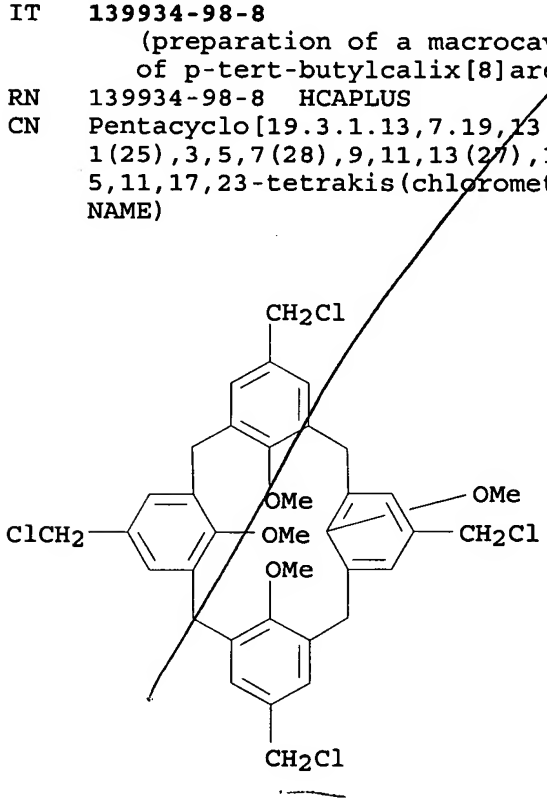
RN 174532-26-4 HCAPLUS
CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexakis(dodecyloxy)- (CA INDEX NAME)



CC 28-23 (Heterocyclic Compounds (More Than One Hetero Atom))
IT 106750-73-6P **124006-38-8P** 174532-25-3P
174532-26-4P
(preparation of calixarenes and absorption spectra and association consts. of inclusion complexes with fullerene)

L24 ANSWER 46 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1995:542368 HCAPLUS
DOCUMENT NUMBER: 123:112047
ORIGINAL REFERENCE NO.: 123:20017a,20020a

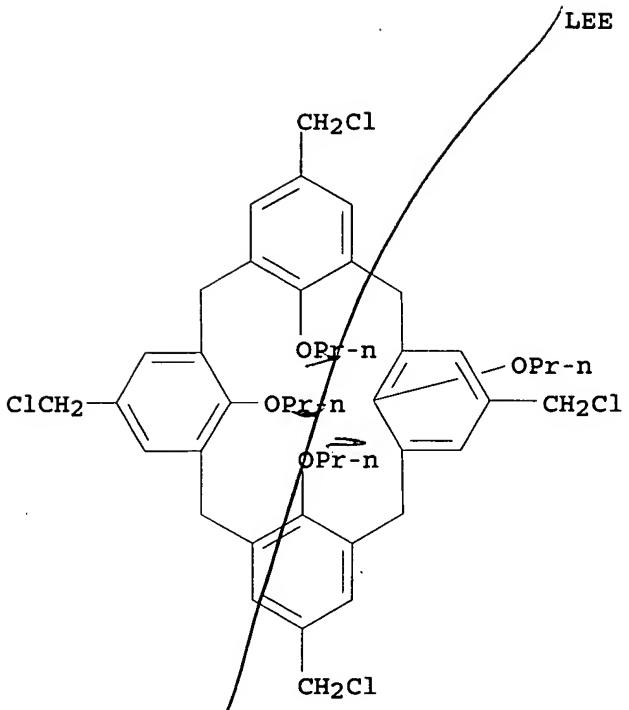
TITLE: A new macrocavitand from the head to tail four-point capping of p-tert-butylcalix[8]arene with a calix[4]arene
AUTHOR(S): Arduini, Arturo; Pochini, Andrea; Secchi, Andrea; Ungaro, Rocco
CORPORATE SOURCE: Dipartimento Chimica Organica Industriale, Universita Parma, Parma, 43100, Italy
SOURCE: Journal of the Chemical Society, Chemical Communications (1995), (8), 879-80
CODEN: JCCCAT; ISSN: 0022-4936
PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 123:112047
ED Entered STN: 11 May 1995
AB The synthesis of a partially rigid calix[8]arene with a deep cavity, obtained by capping p-tert-butylcalix[8]arene with tetramethoxy-p-tetrachloromethylcalix[4]arene in the presence of CsF is reported.
IT **139934-98-8**
(preparation of a macrocavitand from the head to tail four-point capping of p-tert-butylcalix[8]arene with a calix[4]arene)
RN 139934-98-8 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetramethoxy- (CA INDEX NAME)



CC 28-23 (Heterocyclic Compounds (More Than One Hetero Atom))
IT 68971-82-4, p-tert-Butylcalix[8]arene **139934-98-8**
(preparation of a macrocavitand from the head to tail four-point capping of p-tert-butylcalix[8]arene with a calix[4]arene)

L24 ANSWER 47 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1995:519240 HCAPLUS
DOCUMENT NUMBER: 123:9020
ORIGINAL REFERENCE NO.: 123:1899a,1902a
TITLE: Self-assembly of tetracationic amphiphiles bearing a calix[4]arene core. Correlation between the core structure and the aggregation properties

AUTHOR(S): Arimori, Susumu; Nagasaki, Takeshi; Shinkai, Seiji
CORPORATE SOURCE: Dep. of Chemical Science, Kyushu Univ., Fukuoka, 812, Japan
SOURCE: Journal of the Chemical Society, Perkin Transactions 2: Physical Organic Chemistry (1995), (4), 679-83
CODEN: JCPKBH; ISSN: 0300-9580
PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 02 May 1995
AB Water-soluble, conformationally-immobilized calix[4]arenes (1 and 2n) with cone and 1,3-alternate conformations have been synthesized: at the para-position of each Ph unit, 1 has a Me3N+CH2 group and 2n has a Me3N+[CH2]nOCH2 (n = 4, 6, 11) group. Examns. with surface tension, fluorescence and dynamic light-scattering established that in water, cone-1 aggregates into small micellar particles whereas such mol. aggregates are not detected for 1,3-alternate-1. In 2n, both the cone and 1,3-alternate isomers formed aggregates in water but the cone isomers always gave CAC (critical aggregation concentration) values lower than the 1,3-alternate isomers. These results consistently indicate that the cone 2n isomers with a cone-shaped hydrophobic surface are more cohesive intermolecularly than the 1,3-alternate 2n isomers with a cylindrical hydrophobic surface. From the mol. shape one can expect that the cone isomers favorably form a globular micelle whereas the 1,3-alternate isomers favorably form a two-dimensional lamella. This was evidenced by the fact that 1,3-alternate-2n can form stable vesicular aggregates detectable by an electron microscope whereas cone-2n cannot form such stable aggregates. These results demonstrate that the aggregation properties of calix[4]arene-containing amphiphiles can be controlled by the conformational structure difference in the calix[4]arene core.
IT **153651-86-6 163750-99-0**
(effect of conformations of tetracationic amphiphilic calix[4]arenes on their aggregation properties)
RN 153651-86-6 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy-, stereoisomer (CA INDEX NAME)



RN 163750-99-0 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy-, stereoisomer (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
CC 22-13 (Physical Organic Chemistry)
Section cross-reference(s): 46
IT 1862-07-3 13330-96-6 29823-94-7 **153651-86-6**
163750-99-0
(effect of conformations of tetracationic amphiphilic calix[4]arenes on their aggregation properties)

L24 ANSWER 48 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1995:218034 HCAPLUS
DOCUMENT NUMBER: 122:314530
ORIGINAL REFERENCE NO.: 122:57201a,57204a
TITLE: Synthesis of a symmetric octathio bis(calix[4]arene) cage molecule. [Erratum to document cited in CA121:157619]
AUTHOR(S): Blanda, Michael T.; Griswold, Karl E.
CORPORATE SOURCE: Department of Chemistry, Southwest Texas State University, San Marcos, TX, 78666, USA
SOURCE: Journal of Organic Chemistry (1994), 59(26), 8315
CODEN: JOCEAH; ISSN: 0022-3263
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 30 Nov 1994
AB The errors were not reflected in the abstract or the index entries.
IT **155057-44-6**
(reactant for octathio bis(calix[4]arene) cage (Erratum))
RN 155057-44-6 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene,

5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrakis(2-ethoxyethoxy)-
(CA INDEX NAME)

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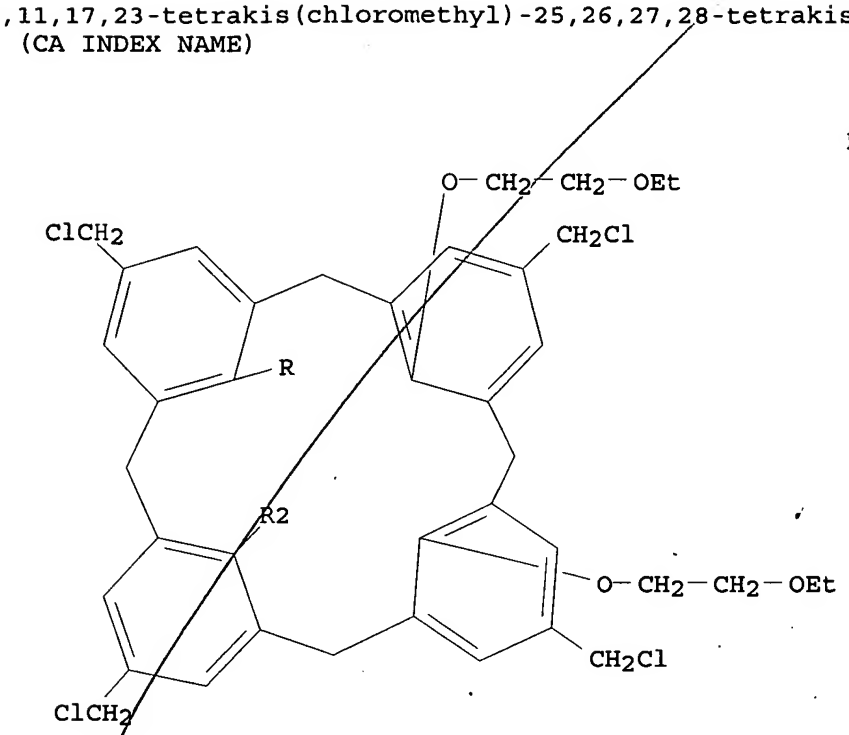

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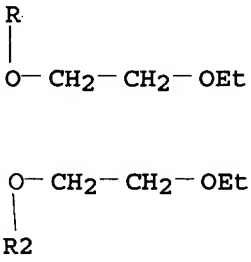


CC 28-23 (Heterocyclic Compounds (More Than One Hetero Atom))
Section cross-reference(s): 25
IT 75-11-6, Methylene diiodide 540-63-6, 1,2-Ethanedithiol
155057-44-6 157362-43-1
(reactant for octathio bis(calix[4]arene) cage (Erratum))

L24 ANSWER 49 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1995:188763 HCAPLUS
DOCUMENT NUMBER: 122:160622
ORIGINAL REFERENCE NO.: 122:29609a,29612a
TITLE: Multiple connection of 1,3-alternate-calix[4]arenes. An approach to synthetic 'nano-tubes'
AUTHOR(S): Ikeda, Atsushi; Shinkai, Seiji
CORPORATE SOURCE: Dep. Chem. Sci. Technol., Kyushu Univ., Fukuoka, 812, Japan
SOURCE: Journal of the Chemical Society, Chemical

Communications (1994), (20), 2375-6
CODEN: JCCCAT; ISSN: 0022-4936
PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 122:160622
ED Entered STN: 12 Nov 1994
AB As an approach to synthetic 'nano-tubes' 1,3-alternate-calix[4]arenes which have a π-basic hole for metal tunneling are connected by a stepwise method.
IT **163750-99-0**
(synthetic approach to 'nano-tubes' alternate calix[4]arenes)
RN 163750-99-0 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy-, stereoisomer (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
CC 28-23 (Heterocyclic Compounds (More Than One Hetero Atom))
Section cross-reference(s): 25
IT 120-80-9, Catechol, reactions **163750-99-0**
(synthetic approach to 'nano-tubes' alternate calix[4]arenes)

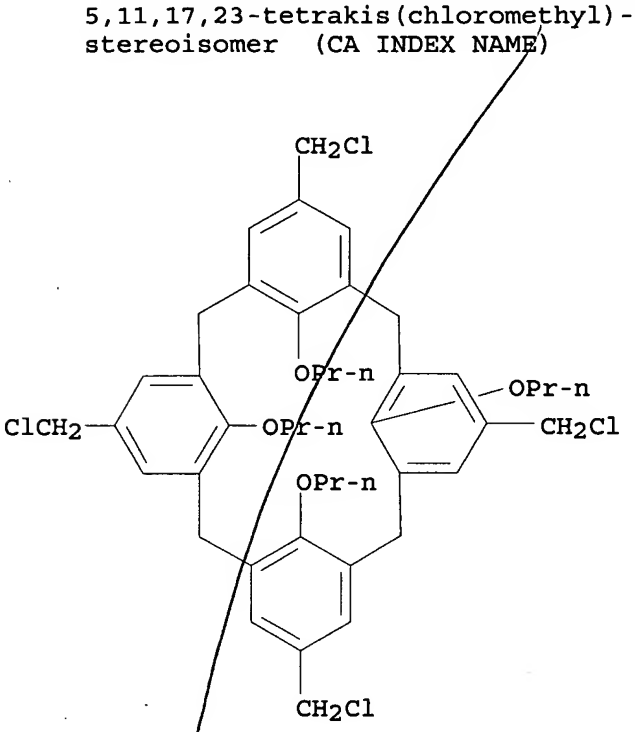
L24 ANSWER 50 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1995:132949 HCAPLUS
DOCUMENT NUMBER: 122:81547
ORIGINAL REFERENCE NO.: 122:15499a,15502a
TITLE: NMR spectroscopic and x-ray crystallographic studies of calix[4]arene-Ag+ complexes. Influence of bound Ag+ on C2v-C2v interconversion in cone-calix[4]arenes
AUTHOR(S): Ikeda, Atsushi; Tsuzuki, Hirohisa; Shinkai, Seiji
CORPORATE SOURCE: Dept. of Chemical Science and Technology, Kyushu Univ., Fukuoka, 812, Japan
SOURCE: Journal of the Chemical Society, Perkin Transactions 2: Physical Organic Chemistry (1972-1999) (1994), (10), 2073-80
CODEN: JCPKBH; ISSN: 0300-9580
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 08 Nov 1994
AB The Ag+ complexes of conformationally immobilized tetra-O-propylcalix[4]arene with a cone or a partial-cone conformation (cone-2Pr or partial-cone-2Pr, resp.) were successfully analyzed by x-ray crystallog. In both complexes Ag+ was bound to the upper rim cavity, sandwiched by the two para carbons in the distal Ph units. The findings provide clear evidence for π-base participation. In particular, the basic calix[4]arene skeleton in partial-cone-2Pr-Ag+ is almost the same as that in partial-cone-2Pr itself. Partial-cone-2R possesses 2 distal benzene rings ideally preorganized for Ag+-binding. 1H NMR spectroscopic studies for the Ag+ complexes in solution indicated that Ag+ is bound to the same site as that in the solid state. In conformationally mobile 2Me, which exists in solution in equilibrium between cone and partial-cone, Ag+ induced a shift of the equilibrium to partial-cone to form the partial-cone-2Me-Ag+ complex. This is ascribed to the ideal preorganization in partial-cone-2R for the Ag+-binding. These results are of great significance for an understanding of π-base participation in the metal-binding events and have important implications on the cation-π interaction in

biol. systems.

IT **153651-86-6**
(methylation of tetrakis(chloromethyl)tetrapropoxycalixarene)

RN 153651-86-6 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy-, stereoisomer (CA INDEX NAME)



CC 29-9 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 75

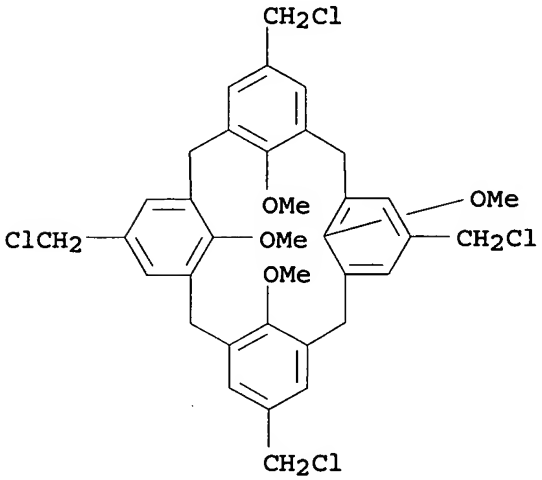
IT **153651-86-6**
(methylation of tetrakis(chloromethyl)tetrapropoxycalixarene)

L24 ANSWER 51 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1995:104386 HCAPLUS
DOCUMENT NUMBER: 123:143198
ORIGINAL REFERENCE NO.: 123:25489a,25492a
TITLE: Liquid-liquid extraction of transition and alkali metal cations by new calixarenes
AUTHOR(S): Hamada, Fumio; Kondo, Yoshihiko; Suzuki, Souichiro; Ohnoki, Seiji; Unieja, Pabindra K.; Atwood, Jerry L.
CORPORATE SOURCE: Mining College, Akita University, Tegata, 010, Japan
SOURCE: International Journal of the Society of Materials Engineering for Resources (1994), 2(1), 37-46
CODEN: IMEREB
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 08 Nov 1994
AB The liquid-liquid extraction of various metal ions by a couple new calix[4]arenes, which have aminobenzene carboxylic acid, benzothiazole, and benzoxazole, thiomethyl, and pyrazole group on the upper rim of calixarene, was studied.
IT **139934-98-8**

(liquid-liquid extraction of transition and alkali metal cations by calixarenes)

RN 139934-98-8 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetramethoxy- (CA INDEX NAME)



CC 22-12 (Physical Organic Chemistry)
Section cross-reference(s): 25, 68, 69

IT 99-05-8, 3-Aminobenzoic acid 118-92-3, 2-Aminobenzoic acid 149-30-4, 2-Mercaptobenzothiazole 150-13-0, 4-Aminobenzoic acid 2382-96-9, 2-Mercaptobenzoxazole 7429-90-5, Aluminum, reactions 7440-02-0, Nickel, reactions 7440-09-7, Potassium, reactions 7440-23-5, Sodium, reactions 7440-43-9, Cadmium, reactions 7440-50-8, Copper, reactions 7440-66-6, Zinc, reactions **139934-98-8** 166587-80-0
(liquid-liquid extraction of transition and alkali metal cations by calixarenes)

L24 ANSWER 52 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1994:630807 HCAPLUS

DOCUMENT NUMBER: 121:230807

ORIGINAL REFERENCE NO.: 121:42091a,42094a

TITLE: preparation of 1,3-alternate-type calixarene derivatives

INVENTOR(S): Shinkai, Seiji

PATENT ASSIGNEE(S): Shingijutsu Kaihatsu Jigyodan, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 06116261	A	19940426	JP 1992-289360	19921003
JP 2999889	B2	20000117		

PRIORITY APPLN. INFO.: JP 1992-289360 19921003

OTHER SOURCE(S): MARPAT 121:230807
ED Entered STN: 12 Nov 1994
GI For diagram(s), see printed CA Issue.
AB The title compds. [I; R = C≥3 alkyl, alkoxyethyl], useful in extracting Ag and K ions, are prepared Propylation of calix[4]arene alc. II (R1 = H) with PrI and Cs2CO3 in acetone under reflux and N gave Pr ether II (R1 = Pr), which was suspended with paraformaldehyde in dioxane and treated with concentrated HCl and H3PO4 with stirring at 80° to give 67% chloromethylcalixarene III. K2CO3 was added to a solution of III in acetone and the solution refluxed, to which a solution of catechol in acetone was added, and the mixture was kept at room temperature to give 81% I (R = Pr) (IV). Extraction of MNO3 (M = K, Ag) in aqueous picric acid by IV showed 21.3% extraction of K+ and 61.7% extraction of Ag+, vs. 1.1 and 7.6%, resp., with a cone-type calixarene.
IT **155057-44-6P 163750-99-0P**
(preparation and reaction of, with catechol, in preparation of 1,3-alternate calixarene derivs.)
RN 155057-44-6 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrakis(2-ethoxyethoxy)- (CA INDEX NAME)

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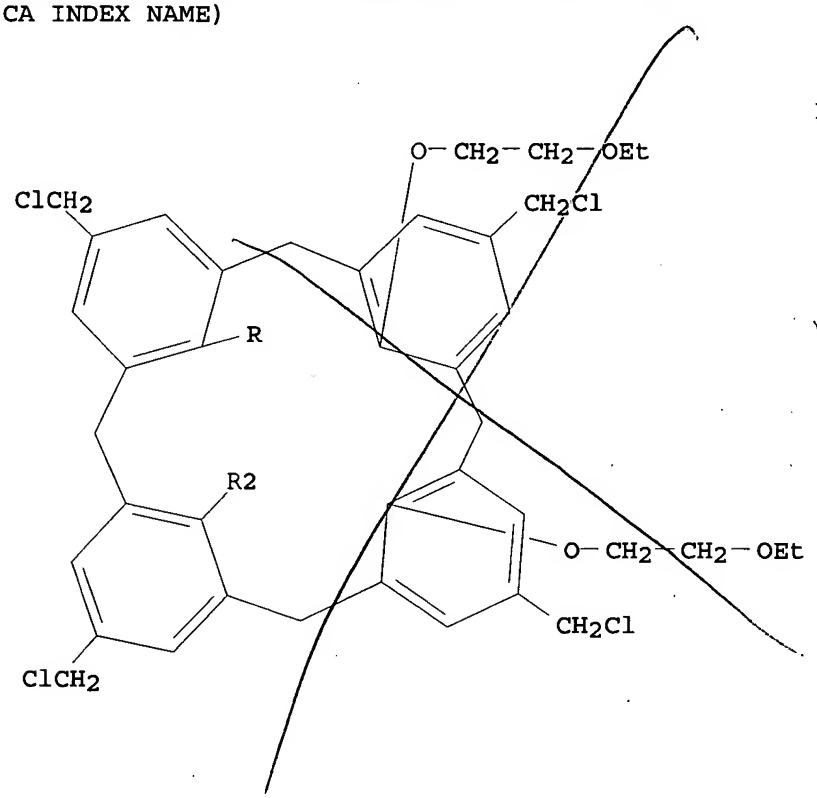

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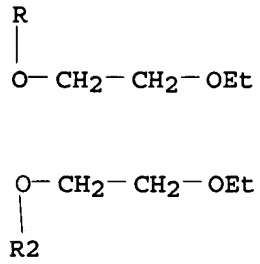
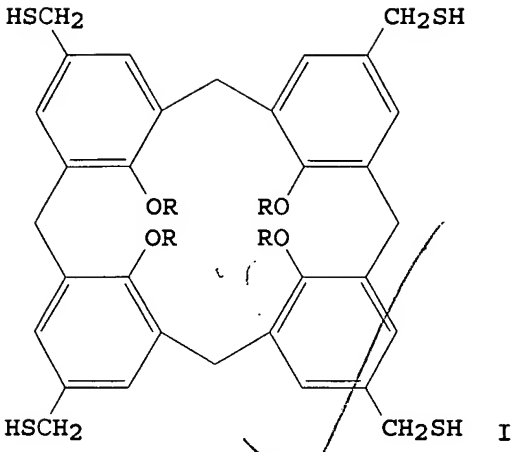


RN 163750-99-0 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy-, stereoisomer (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IC ICM C07D323-00
CC 28-23 (Heterocyclic Compounds (More Than One Hetero Atom))
IT **155057-44-6P 163750-99-0P**
(preparation and reaction of, with catechol, in preparation of 1,3-alternate calixarene derivs.)

L24 ANSWER 53 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1994:557619 HCAPLUS
DOCUMENT NUMBER: 121:157619
ORIGINAL REFERENCE NO.: 121:28541a,28544a
TITLE: Synthesis of a symmetric octathio bis(calix[4]arene) cage molecule
AUTHOR(S): Blanda, Michael T.; Griswold, Karl E.
CORPORATE SOURCE: Department of Chemistry, Southwest Texas State University, San Marcos, TX, 78666, USA
SOURCE: Journal of Organic Chemistry (1994), 59(15), 4313-15
CODEN: JOCEAH; ISSN: 0022-3263
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 01 Oct 1994
GI



I

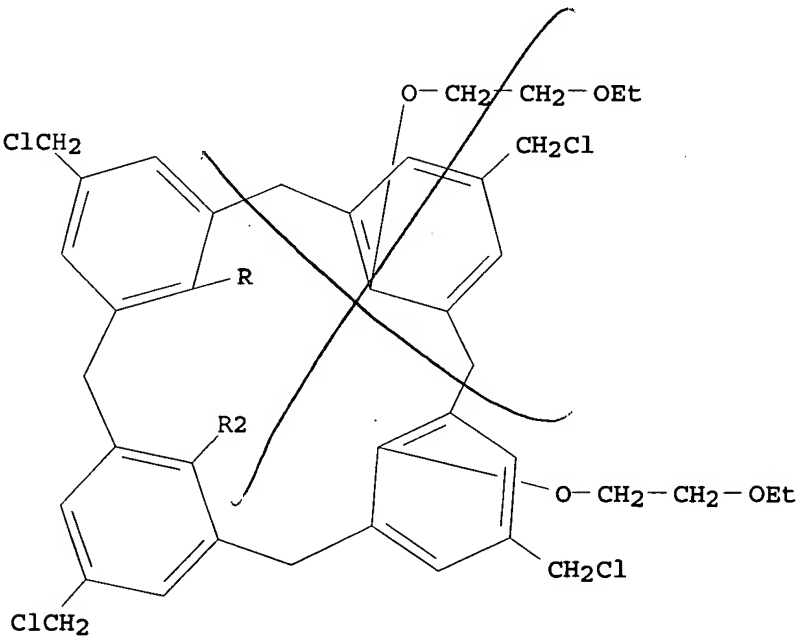
AB Condensation of 4-(mercaptomethyl)-25,26,27,28-tetrakis(2-ethoxyethoxy)calix[4]arene I (R = ethoxyethoxy) with methylene diiodide gave the title compound Complexation behavior of the octathio bis(calix[4]arene) with p-xylene was reported.

IT **155057-44-6**
(reactant for octathio bis(calix[4]arene) cage)

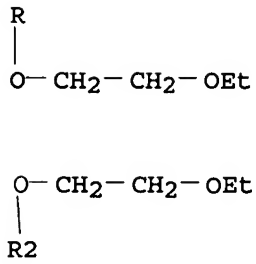
RN 155057-44-6 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrakis(2-ethoxyethoxy)- (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



CC 28-23 (Heterocyclic Compounds (More Than One Hetero Atom))
Section cross-reference(s): 25
IT 75-11-6, Methylene diiodide 540-63-6, 1,2-Ethanedithiol
155057-44-6 157362-43-1
(reactant for octathio bis(calix[4]arene) cage)

L24 ANSWER 54 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1994:508176 HCAPLUS
DOCUMENT NUMBER: 121:108176
ORIGINAL REFERENCE NO.: 121:19511a,19514a
TITLE: New artificial receptors from selectively functionalized calix [4] arenes
AUTHOR(S): Arduini, Arturo; Casnati, Alessandro; Fabbi, Massimo; Minari, Patrizia; Pochini, Andrea; Sicuri, Anna Rita; Ungaro, Rocco
CORPORATE SOURCE: Ist. Chim. Org., Univ. Parma, Parma, I-43100, Italy
SOURCE: Supramolecular Chemistry (1993), 1(3-4), 235-46
CODEN: SCHEER; ISSN: 1061-0278
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 121:108176
ED Entered STN: 03 Sep 1994
AB The development of new synthetic methods for the monoalkylation of calix[4]arenes at the lower rim allows the synthesis of a new class of trihydroxamate siderophores. Three chelating hydroxamic acid units are introduced through a sequence of reactions which blocks the macrocycle in the cone conformation. The new ligands obtained form neutral 1:1 complexes (FeL) with iron(III), which are stable in EtOH/H2O 9:1 at pH 2-7. Calix[4]arene bis-crown ethers are prepared by exploiting the selective 1,2-(proximal) functionalization of calix[4]arenes at the lower rim. These ligands are, however, less effective in complexing alkali metal cations compared with the 1,3-calix[4]arene crown-ethers which, in their partial cone structure, offer a better shielding for the complexed cations. Rigid upper rim-bridged calix[4]arenes potentially useful for the inclusion of neutral mols. are prepared by exploiting the selective 1,3-diformylation of calix[4]arene at the upper rim. Finally a new chloromethylation method for calix[4]arenes blocked in the cone conformation is described together with the synthesis of new cavitands.
IT **156714-22-6P**
(preparation of)
RN 156714-22-6 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrakis(2-ethoxyethoxy)-

, stereoisomer (CA INDEX NAME)

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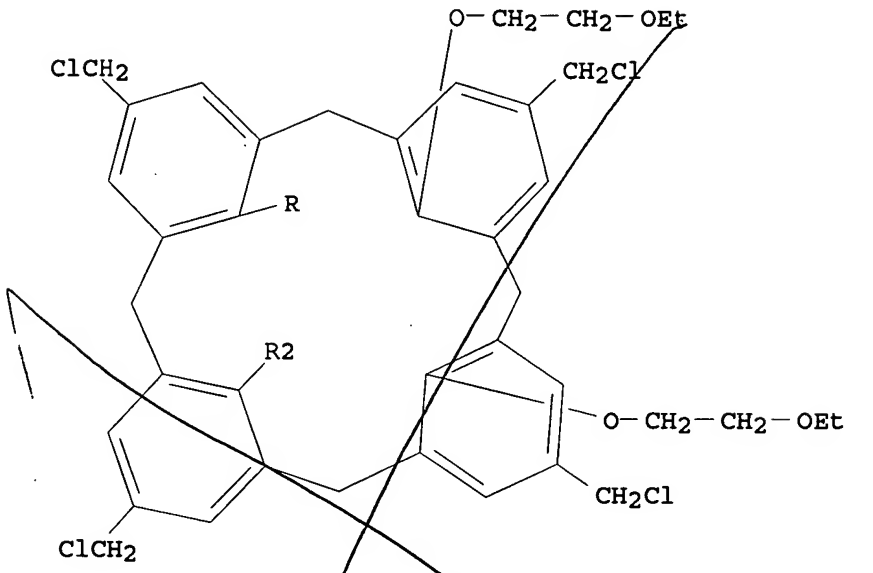
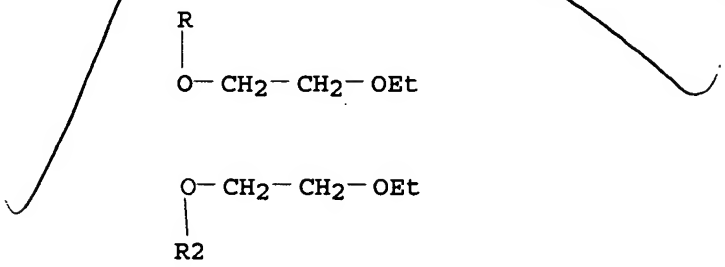


PAGE 2-A



CC 25-29 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
Section cross-reference(s): 22
IT 137014-58-5P 137014-59-6P 156625-52-4P 156625-54-6P
156625-56-8P 156625-57-9P **156714-22-6P**
(preparation of)

L24 ANSWER 55 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1994:308588 HCAPLUS
DOCUMENT NUMBER: 120:308588
ORIGINAL REFERENCE NO.: 120:54129a,54132a
TITLE: On the Origin of High Ionophoricity of 1,3-Alternate Calix[4]arenes: π-donor Participation in Complexation of Cations and Evidence for Metal-Tunneling through the Calix[4]arene Cavity
AUTHOR(S): Ikeda, Atsushi; Shinkai, Seiji
CORPORATE SOURCE: Fac. Eng., Kyushu Univ., Fukuoka, 812, Japan
SOURCE: Journal of the American Chemical Society (1994),

116(7), 3102-10
CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 11 Jun 1994

AB Nine conformationally-immobilized calix[4]arenes (including two doubly-bridged 1,3-alternate calix[4]arenes) and several reference calix[4]arenes with other conformations were synthesized. Two-phase solvent-extraction of and determination of association consts. by 1H NMR spectroscopy for alkali metal cations established that, surprisingly, 1,3-alternate and partial-cone conformers show an ion affinity higher than the corresponding cone conformers. Detailed examination with 1H NMR spectroscopy presented unambiguous evidence that in the 1,3-alternate conformers the metal cation is bound asym. to one of two metal-binding sites composed of two phenolic oxygens and two benzene rings, whereas in the partial-cone conformers the metal cation is bound to the upper rim composed of a phenolic oxygen in the inverted Ph unit and two benzene rings in the proximal Ph units. These metal-binding modes were rationalized in terms of the "cation-π interaction". The contribution of the cation-π interaction was further confirmed by the finding that these conformers all show high Ag+ affinity without exception. The x-ray crystallog. study of the partial-cone-2.Ag+ complex established that Ag+ is bound to a phenolic oxygen in the inverted Ph unit and two benzene rings in the proximal Ph units. Dynamic 1H NMR spectroscopy at the low-temperature region showed that Ag+ alternates intramolecularly between the two binding sites through a π-basic hole of 1,3-alternate calix[4]arenes. To the best of the authors' knowledge, this is the first example for Ag+-tunneling across an aromatic cavity and has important implications with regard to the metal cation-π interaction expected for metal transport through ion channels, metal inclusion in fullerenes, intercalation of metal cations into graphites, etc.

IT **155057-44-6P 163750-99-0P**
(preparation of)

RN 155057-44-6 HCAPLUS

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrakis(2-ethoxyethoxy)- (CA INDEX NAME)

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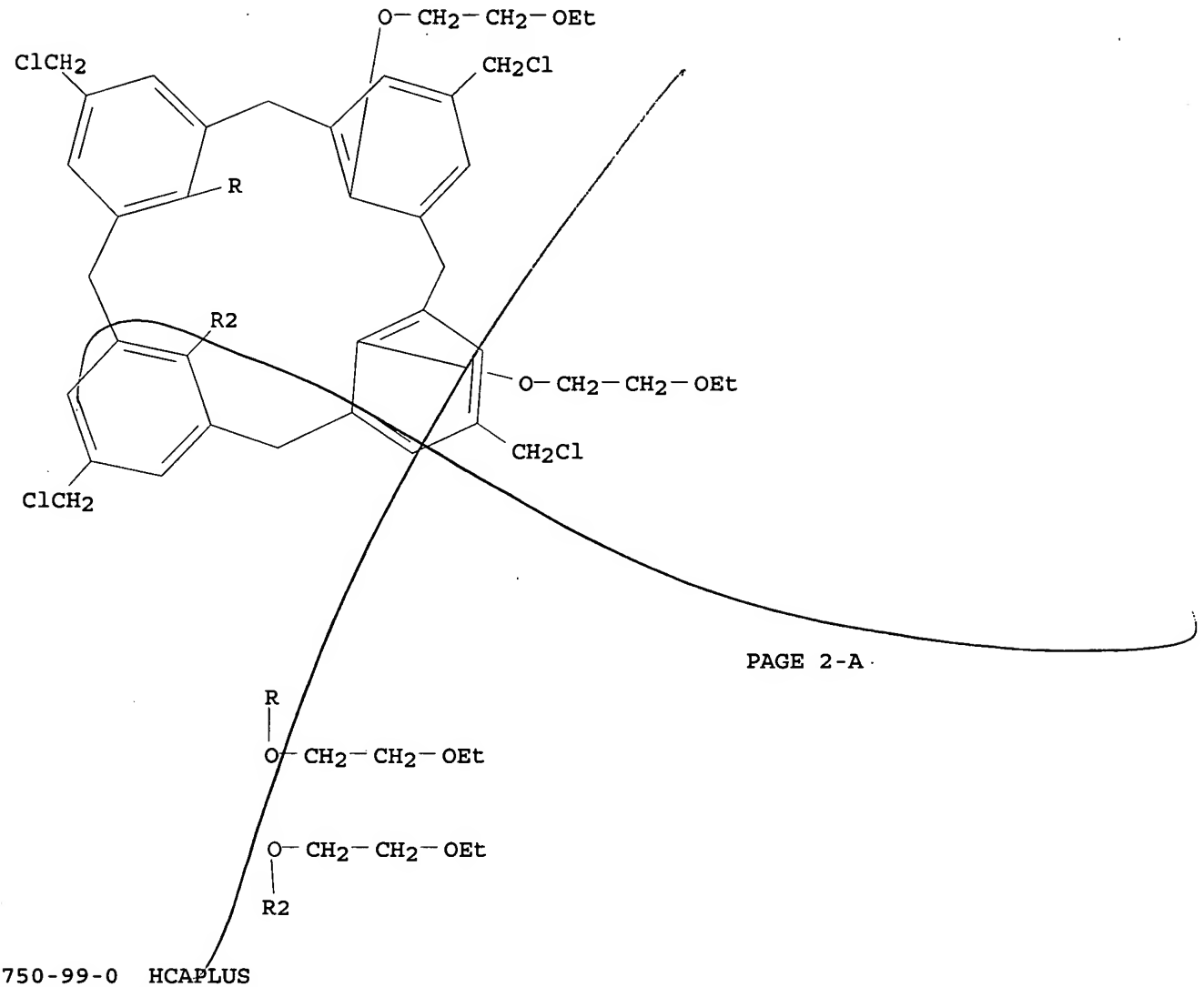
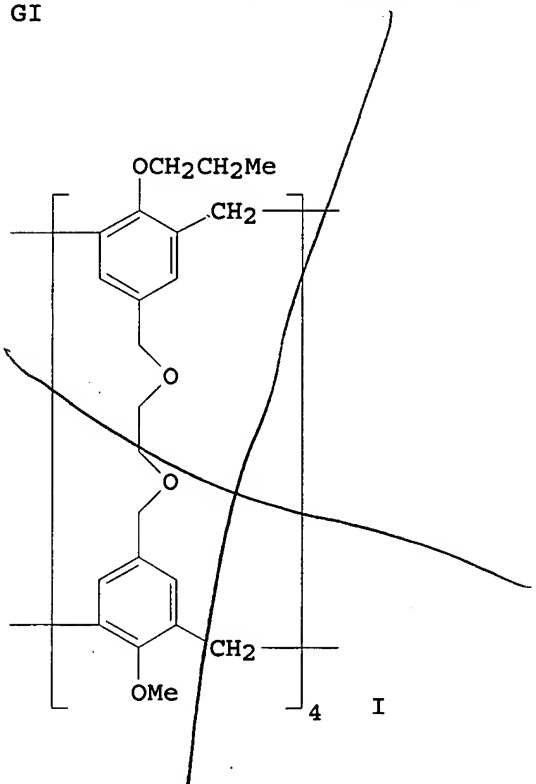


RN 163750-99-0 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy-, stereoisomer (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
CC 68-2 (Phase Equilibriums, Chemical Equilibriums, and Solutions)
Section cross-reference(s): 65
IT 97600-39-0P 105880-81-7P 155057-43-5P **155057-44-6P**
155057-45-7P **163750-99-0P**
(preparation of)

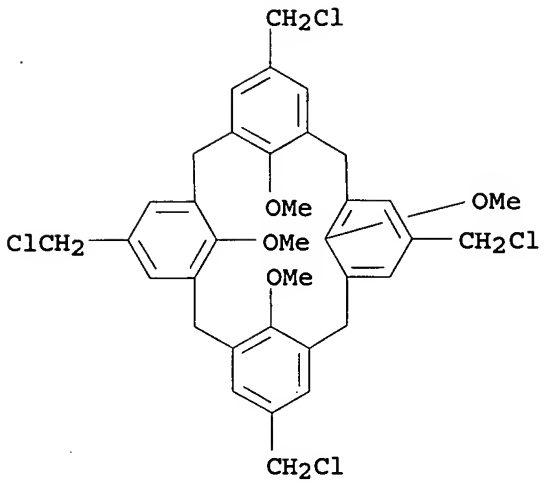
L24 ANSWER 56 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1994:217636 HCAPLUS
DOCUMENT NUMBER: 120:217636
ORIGINAL REFERENCE NO.: 120:38649a,38652a
TITLE: Molecular design and synthesis of a biscalix[4]arene-based cage molecule
AUTHOR(S): Araki, Koji; Sisido, Koichi; Hisaichi, Katsuya;

Shinkai, Seiji
CORPORATE SOURCE: Fac. Eng., Kysuhu Univ., Fukuoka, 812, Japan
SOURCE: Tetrahedron Letters (1993), 34(51), 8297-300
CODEN: TELEAY; ISSN: 0040-4039
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 120:217636
ED Entered STN: 30 Apr 1994
GI

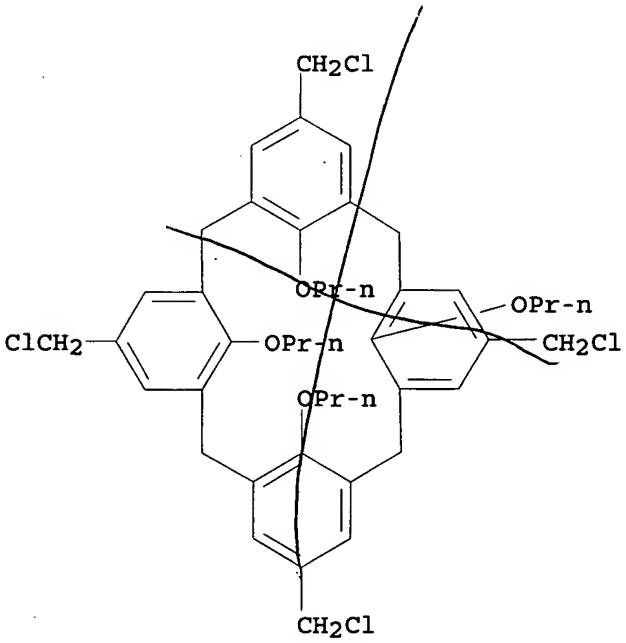


I

AB The biscalixarene-based cage mol. I, the synthesis of which is precedented but only in very low yield, was designed on the basis of the careful assessment of the reaction route and mol. models and synthesized for the first time in reasonable yield.
IT **139934-98-8**
(reaction of, with (hydroxyethoxy)methyl-substituted calixarene)
RN 139934-98-8 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetramethoxy- (CA INDEX NAME)



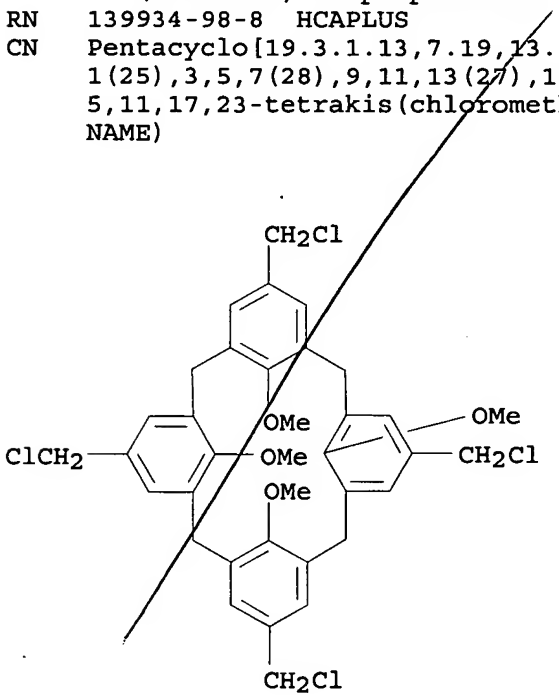
IT **153651-86-6**
(reaction of, with ethylene glycol)
RN 153651-86-6 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy-, stereoisomer (CA INDEX NAME)



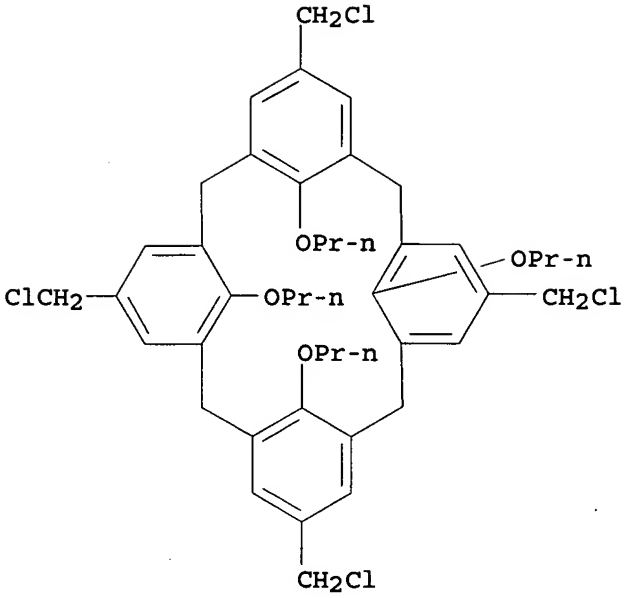
CC 28-23 (Heterocyclic Compounds (More Than One Hetero Atom))
IT **139934-98-8**
(reaction of, with (hydroxyethoxy)methyl-substituted calixarene)
IT **153651-86-6**
(reaction of, with ethylene glycol)

L24 ANSWER 57 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1994:191697 HCAPLUS

DOCUMENT NUMBER: 120:191697
ORIGINAL REFERENCE NO.: 120:33931a,33934a
TITLE: Stapled calix[n]arenes: immobilization of the calix[4]arene conformation by crosslinking on the upper rim
AUTHOR(S): Ikeda, Atsushi; Shinkai, Seiji
CORPORATE SOURCE: Fac. Eng., Kyushu Univ., Fukuoka, 812, Japan
SOURCE: Journal of the Chemical Society, Perkin Transactions 1: Organic and Bio-Organic Chemistry (1972-1999) (1993), (22), 2671-3
CODEN: JCPRB4; ISSN: 0300-922X
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 16 Apr 1994
GI For diagram(s), see printed CA Issue.
AB The calix[4]arene conformation can be immobilized by stapling the upper rim of I (R = Me, Pr) with catechol, resorcinol or salicylic acid: in certain cases novel mol. asymmetry is generated.
IT **139934-98-8 153651-86-6**
(reactant, in preparation of crosslinked calixarene)
RN 139934-98-8 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetramethoxy- (CA INDEX NAME)

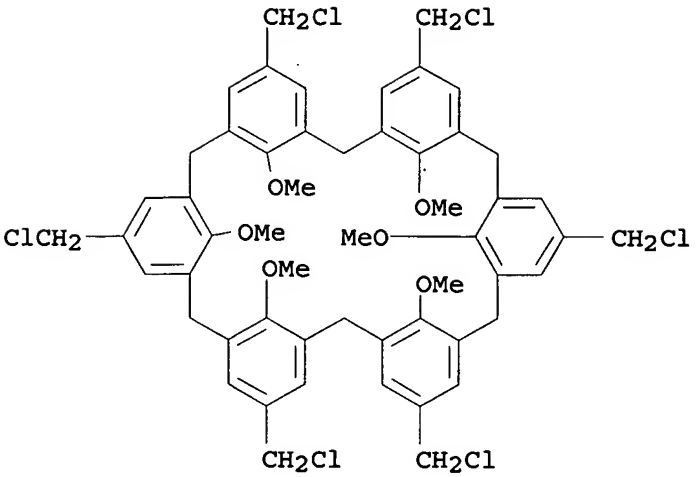


RN 153651-86-6 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetrapropoxy-, stereoisomer (CA INDEX NAME)

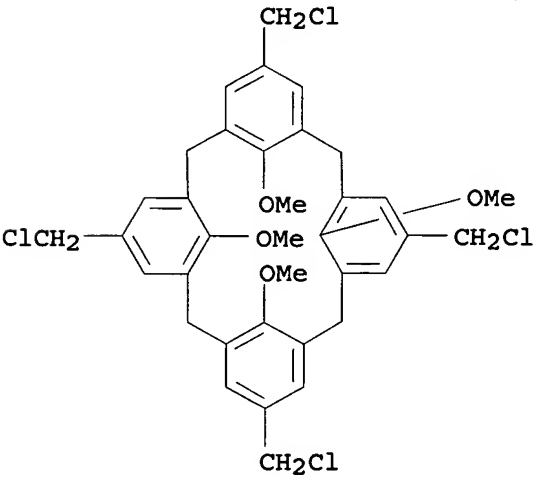


CC 28-23 (Heterocyclic Compounds (More Than One Hetero Atom))
IT 69-72-7, reactions 108-46-3, 1,3-Benzenediol, reactions 120-80-9, Catechol, reactions **139934-98-8 153651-86-6**
(reactant, in preparation of crosslinked calixarene)

L24 ANSWER 58 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1993:603792 HCAPLUS
DOCUMENT NUMBER: 119:203792
ORIGINAL REFERENCE NO.: 119:36369a,36372a
TITLE: New water-soluble calixarenes modified with amino acids at the upper rim
AUTHOR(S): Nagasaki, Takeshi; Tajiri, Yusuke; Shinkai, Seiji
CORPORATE SOURCE: Fac. Eng., Kyusyu Univ., Fukuoka, 812, Japan
SOURCE: Recueil des Travaux Chimiques des Pays-Bas (1993), 112(6), 407-11
CODEN: RTCPA3; ISSN: 0165-0513
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 13 Nov 1993
GI For diagram(s), see printed CA Issue.
AB Calix[n]arenes I (n = 4, 6) modified with L-cysteines were synthesized. I were water-soluble, particularly, at acidic and basic pH regions. The critical micelle concns. (estimated by surface tension) appeared at (0.50-3.2)+10-5 M. The "hydrophobicity" of these cavities was estimated by fluorescence of 8-anilino-1-naphthalenesulfonate: it showed that these calix[n]arenes become most hydrophobic at pH 5-6. The selectivity in guest inclusion was significantly affected by the medium pH.
IT **124006-38-8 139934-98-8**
(substitution of, with thiourea)
RN 124006-38-8 HCAPLUS
CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



RN 139934-98-8 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetramethoxy- (CA INDEX NAME)



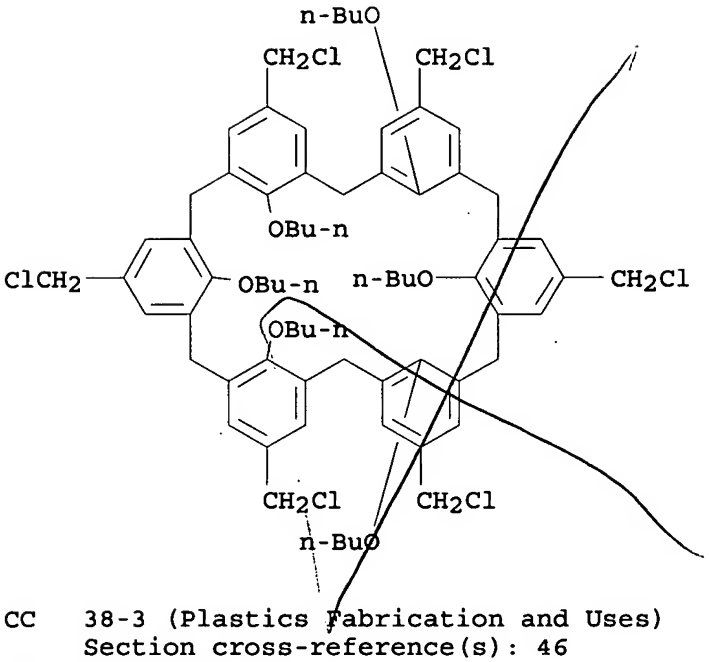
CC 34-2 (Amino Acids, Peptides, and Proteins)
Section cross-reference(s): 25, 66
IT **124006-38-8 139934-98-8**
(substitution of, with thiourea)

L24 ANSWER 59 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1993:540669 HCAPLUS
DOCUMENT NUMBER: 119:140669
ORIGINAL REFERENCE NO.: 119:25245a,25248a
TITLE: Perforated monolayers: fabrication of calix[6]arene-based composite membranes that function as molecular sieves
AUTHOR(S): Conner, Mark D.; Janout, Vaclav; Kudelka, Ivo; Dedek, Petr; Zhu, Jiayi; Regen, Steven L.

CORPORATE SOURCE: Zettlemoyer Cent. Surface Stud., Lehigh Univ., Bethlehem, PA, 18015, USA
SOURCE: Langmuir (1993), 9(9), 2389-97
CODEN: LANGD5; ISSN: 0743-7463
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 02 Oct 1993

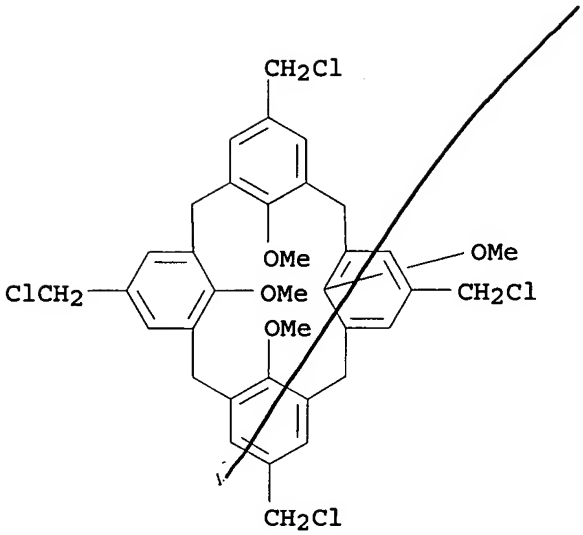
AB The synthesis, monolayer behavior, and polymerization characteristics of 3 new calix[6]arenes, and the fabrication and permselectivity of a series of composite membranes derived from one such amphiphile are presented. Monolayers of 5,11,17,23,29,35-hexakis(N-(2-methyldithio)ethyl)carbamoyl)-37,38,39,40,41-42-hexakis(octyloxy)calix[6]arene (I) exhibit a collapse pressure of 53 dyn/cm; those prepared from 5,11,17,23,29,35-hexakis(mercaptomethyl)-37,38,39,40,41,42-hexakis(n-butyloxy)calix[6]arene (II), and 5,11,17,23,29,35-hexavinyl-37,38,39,40,41,42-hexakis(3,6-dioxa-1-heptyloxy)calix[6]arene (III) collapse at 16 and 26 dyn/cm, resp. At the collapse point, the areas that are occupied by I-III are 165, 150, and 155 Å2/mol., resp. Polymerization of I via UV-induced disulfide disproportionation and II by air oxidation result in a modes reduction in surface pressure. In contrast, UV irradiation of III results in the complete loss of surface pressure and an apparent buckling of the film. Composite membranes that were fabricated from Langmuir-Blodgett (LB) multilayers of I, plus polymeric supports having large permanent pores (i.e., Celgard and Nuclepore membranes), show a significant reduction in permeability toward He, N and SF6 but no enhancement in permeation selectivity (perselectivity). In striking contrast, analogous composites that have been constructed using poly[1-(trimethylsilyl)-1-propyne] as support material, function as mol. sieves; i.e., He and N readily permeate the composites, but SF6 does not. On the basis of intrinsic permeability coeffs. that were calculated for He and N as a function of LB film thickness, it is concluded that this permselectivity is due to the selective transport across homogeneous multilayers of I.

IT **149969-39-1P**
(preparation and reaction of, with potassium thioacetate)
RN 149969-39-1 HCAPLUS
CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 37,38,39,40,41,42-hexabutoxy-5,11,17,23,29,35-hexakis(chloromethyl)- (CA INDEX NAME)



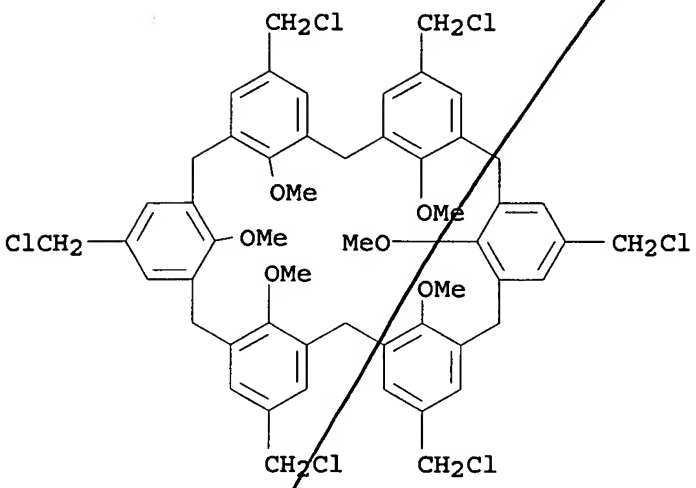
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 46
IT **149969-39-1P**
(preparation and reaction of, with potassium thioacetate)

L24 ANSWER 60 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1992:173253 HCAPLUS
DOCUMENT NUMBER: 116:173253
ORIGINAL REFERENCE NO.: 116:29303a,29306a
TITLE: Novel conformational isomerism of water-soluble calix[4]arenes
AUTHOR(S): Nagasaki, Takeshi; Sisido, Koichi; Arimura, Takashi; Shinkai, Seiji
CORPORATE SOURCE: Fac. Eng., Kyushu Univ., Fukuoka, 812, Japan
SOURCE: Tetrahedron (1992), 48(5), 797-804
CODEN: TETRAB; ISSN: 0040-4020
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 116:173253
ED Entered STN: 03 May 1992
AB The conformer distribution of 5,11,17,23-tetrasulfonato-25,26,27,28-tetramethoxycalix[4]arene and 5,11,17,23-tetrakis(trimethylammoniomethyl)-25,26,27,28-tetramethoxycalix[4]arene was estimated in an aqueous system. Surprisingly, these calix[4]arenes adopt a 1,3-alternate conformation which has never been found as a major species in organic solvents but has been predicted to be most stable on the basis of computational studies.
IT **139934-98-8P**
(preparation and reaction of, with trimethylamine)
RN 139934-98-8 HCAPLUS
CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene, 5,11,17,23-tetrakis(chloromethyl)-25,26,27,28-tetramethoxy- (CA INDEX NAME)



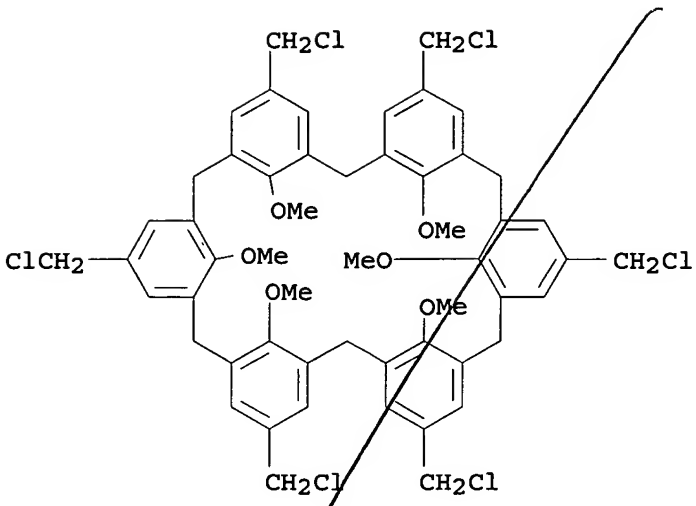
CC 22-3 (Physical Organic Chemistry)
IT **139934-98-8P**
(preparation and reaction of, with trimethylamine)

L24 ANSWER 61 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1992:58923 HCAPLUS
DOCUMENT NUMBER: 116:58923
ORIGINAL REFERENCE NO.: 116:10185a,10188a
TITLE: Calixarene-based molecular capsule
AUTHOR(S): Arimura, Takashi; Matsumoto, Satoshi; Teshima, Osamu; Nagasaki, Takeshi; Shinkai, Seiji
CORPORATE SOURCE: Fac. Eng., Kyushu Univ., Fukuoka, 812, Japan
SOURCE: Tetrahedron Letters (1991), 32(38), 5111-14
CODEN: TELEAY; ISSN: 0040-4039
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 21 Feb 1992
AB A mol. capsule was synthesized by the equimolar reaction of 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxycalix[6]arene and 5,11,17,23,29,35-hexakis(mercaptomethyl)-37,38,39,40,41,42-hexamethoxycalix[6]arene. The capsule is capable of constructive binding of a guest mol. (N-methylformanilide).
IT **124006-38-8P**
(preparation and reaction of, with mercaptomethyl calixarene)
RN 124006-38-8 HCAPLUS
CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



CC 25-29 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
IT **124006-38-8P** 138578-98-0P
(preparation and reaction of, with mercaptomethyl calixarene)

L24 ANSWER 62 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1991:608101 HCAPLUS
DOCUMENT NUMBER: 115:208101
ORIGINAL REFERENCE NO.: 115:35517a,35520a
TITLE: A new calix[6]arene-based uranophile with phosphonate groups as ligands
AUTHOR(S): Nagasaki, Takeshi; Arimura, Takashi; Shinkai, Seiji
CORPORATE SOURCE: Fac. Eng., Kyushu Univ., Fukuoka, 812, Japan
SOURCE: Bulletin of the Chemical Society of Japan (1991), 64(8), 2575-7
CODEN: BCSJA8; ISSN: 0009-2673
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 15 Nov 1991
GI For diagram(s), see printed CA Issue.
AB A new calix[6]arene-based uranophile I which has six phosphonomethyl groups on the upper rim was synthesized. This compound forms a 1:1 complex with uranyl ion (UO22+). The stability constant was estimated to be 1017.5 M-1, which is satisfactorily comparable with those for calix[6]arene-based uranophiles bearing OH or COOH groups on the lower rim.
IT **124006-38-8**
(reaction of, with tri-Et phosphite)
RN 124006-38-8 HCAPLUS
CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



CC 29-7 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 25, 78
IT **124006-38-8**
(reaction of, with tri-Et phosphite)

L24 ANSWER 63 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1991:143712 HCAPLUS
DOCUMENT NUMBER: 114:143712
ORIGINAL REFERENCE NO.: 114:24397a,24400a
TITLE: Calixarene derivatives having phosphonic acid group
INVENTOR(S): Kondo, Yoshikazu; Yamamoto, Toshihiro; Shinkai, Seiji; Matsuda, Tsutomu
PATENT ASSIGNEE(S): Kanebo, Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 02229198	A	19900911	JP 1989-49236	19890228
PRIORITY APPLN. INFO.:			JP 1989-49236	19890228

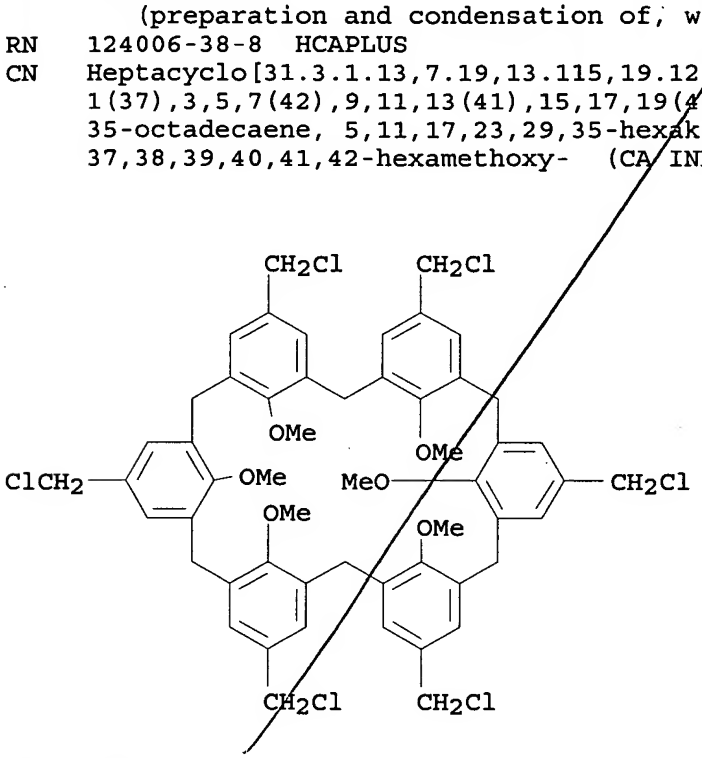
OTHER SOURCE(S): MARPAT 114:143712
ED Entered STN: 19 Apr 1991
GI For diagram(s), see printed CA Issue.
AB The title derivs. I [R = H, C1-20 hydrocarbyl which may have OH or CO2H; X = P(O)(OM)2, R1P(O)(OM)2; R1 = lower hydrocarbylene; M = H, metal; m = 4-12) (II), I [R = R2P(O)(OM)2; R2 = hydrocarbylene; X = H, C1-20 hydrocarbyl which may have OH, CO2H, SO3M] (III), and IV (R3, R4, and R5 = any group given for X in III; n = 2-6), useful as water-soluble host compds. for capturing ions and compds., especially uranyl ion, and high-efficiency catalysts, are prepared A THF solution of I (R = X = H, m = 6), previously refluxed for 2 h, was treated with a THF solution of NaOH under reflux for 4 h, subsequently EtI was added dropwise and the reaction mixture was stirred under reflux for 20 h to give I (R = Me, X = H, m = 6) (V). A CS2 solution of V and MeOCH2Cl was

treated with a CH2Cl2 solution of ZnCl2 at 20° for 38 h to give I (R = Me, R1 = CH2Cl, n = 6), which was treated with Et3PO3 under reflux for 14 h to give I [R = Me, X = CH2P(O)(OEt)2, m = 6) (VI). VI in dioxane was treated with concentrated HCl under reflux for 12 h to give II [R = Me, X = P(O)(OH)2, m = 6], which form a complex with UO2+ ion with stability coefficient log K = 21.3 M-1.

IT **124006-38-8P**
(preparation and condensation of, with tri-Et phosphite)

RN 124006-38-8 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



IC ICM C07F009-38
ICS C07F009-40

CC 29-7 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 25

IT **124006-38-8P**
(preparation and condensation of, with tri-Et phosphite)

L24 ANSWER 64 OF 64 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1990:7106 HCAPLUS
DOCUMENT NUMBER: 112:7106
ORIGINAL REFERENCE NO.: 112:1394h,1395a
TITLE: Chloromethylation of calixarenes and synthesis of new water soluble macrocyclic hosts
AUTHOR(S): Almi, Mario; Arduini, Arturo; Casnati, Alessandro; Pochini, Andrea; Ungaro, Rocco
CORPORATE SOURCE: Ist. Chim. Org., Univ. Parma, Parma, I-43100, Italy
SOURCE: Tetrahedron (1989), 45(7), 2177-82
CODEN: TETRAB; ISSN: 0040-4020
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 112:7106

ED Entered STN: 06 Jan 1990

GI For diagram(s), see printed CA Issue.

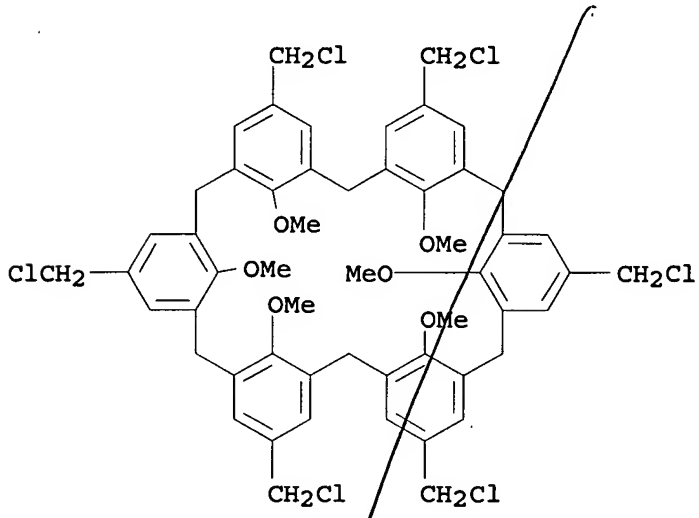
AB The chloromethylation of calix[4]arene and of the Me ethers (I; n = 6, 8; R = Me) of calix[6]arene and calix[8]arene, using chloromethyl

octyl ether and SnCl4 in chloroform at room temperature, has been performed in good yield. The chloromethylated products have been used as intermediates to introduce onto calixarenes phosphonic acid groups which render these macrocycles water soluble and potentially useful in host-guest chemical

IT **124006-38-8P 124006-39-9P**
(preparation and reaction of, with tri-Et phosphite)

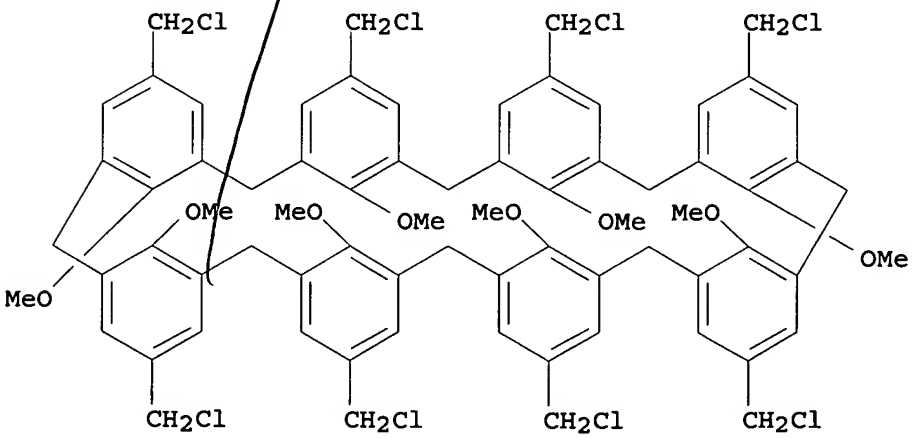
RN 124006-38-8 HCAPLUS

CN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene, 5,11,17,23,29,35-hexakis(chloromethyl)-37,38,39,40,41,42-hexamethoxy- (CA INDEX NAME)



RN 124006-39-9 HCAPLUS

CN Nonacyclo[43.3.1.13,7.19,13.115,19.121,25.127,31.133,37.139,43]hexapentaconta-1(49),3,5,7(56),9,11,13(55),15,17,19(54),21,23,25(53),27,29,31(52),33,35,37(51),39,41,43(50),45,47-tetracosaene, 5,11,17,23,29,35,41,47-octakis(chloromethyl)-49,50,51,52,53,54,55,56-octamethoxy- (CA INDEX NAME)



CC 25-10 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
Section cross-reference(s): 29

IT 124006-37-7P **124006-38-8P 124006-39-9P**
(preparation and reaction of, with tri-Et phosphite)

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                 OR 97-64-3/BI)
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L23          482 SEA ABB=ON  PLU=ON  L14 NOT (L18 OR  L21)

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